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# REPORT

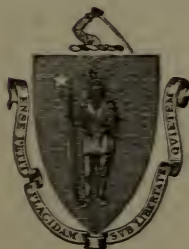
OF THE

*Mass:*  
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## BOARD OF METROPOLITAN PARK COMMISSIONERS.

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JANUARY, 1906.



BOSTON:  
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## OFFICERS.

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### Commissioners.

WILLIAM B. DE LAS CASAS, *Chairman.*  
EDWIN B. HASKELL.            EDWIN U. CURTIS.  
DAVID N. SKILLINGS.        ELLERTON P. WHITNEY.

### Landscape Architects.

#### *Advisory.*

OLMSTED BROTHERS.

### Engineer.

JOHN R. RABLIN.

### Law and Claims.

GEORGE LYMAN ROGERS.

### Secretary.

JOHN WOODBURY.

OFFICES, 14 Beacon Street, Boston, Mass.



# Commonwealth of Massachusetts.

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## REPORT.

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The Metropolitan Park Commission presents herewith its thirteenth annual report.

The Board has continued its work during the past year chiefly along two lines, — the care and maintenance of the portions of the Metropolitan Parks System already acquired, and the development and extension of other portions under the continuing appropriations made available by chapters 419 and 429 of the Acts of the Legislature for the year 1903.

There have been few changes in the acreage of the reservations and parkways. The most important addition has been the acquirement of most of the land required for a parkway from Revere Beach toward Winthrop, and of this the larger part was a gift of the Boston, Revere Beach & Lynn Railroad. Other small pieces of land have been acquired, and a few transfers have been made for the purpose of improving the acquirements previously made or of facilitating their development for public use. Investigations have also been made as to the feasibility of purchasing other lands at agreed prices, to provide for the completion of other portions of the system during the coming year. It is now the well-understood policy of the Board under present appropriations to avoid as far as possible the taking of land by power of eminent domain, except in cases where the cost has been first determined by previous agreement as to the price.

The total area of the holdings in the Metropolitan Parks System is 10,053.70 acres, of which 9,380.25 acres are

classed as reservations and the remaining 673.45 acres as parkways. This includes 7,326.63 acres of woodland, 47 miles of river frontage, 9.86 miles of beaches and 25.55 miles of parkways. Further details are given in a table on page 20 of this report.

Land claims amounting to \$63,227.87 have been disposed of during the year. No large land claim is now in suit, and the aggregate of the several small claims remaining unpaid is provided for by funds reserved to meet them. The condition of the loans on Dec. 1, 1905, is briefly summarized as follows:—

Metropolitan Parks Loan:—

Appropriations and receipts, . . . . .	\$8,188,334 01
Expenditures, . . . . .	7,973,830 83

Balance in hands of State Treasurer, . . . . .	\$214,503 18
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Metropolitan Parks Loan, Series II.:—

Appropriations and receipts, . . . . .	\$4,514,907 41
Expenditures, . . . . .	4,260,745 88

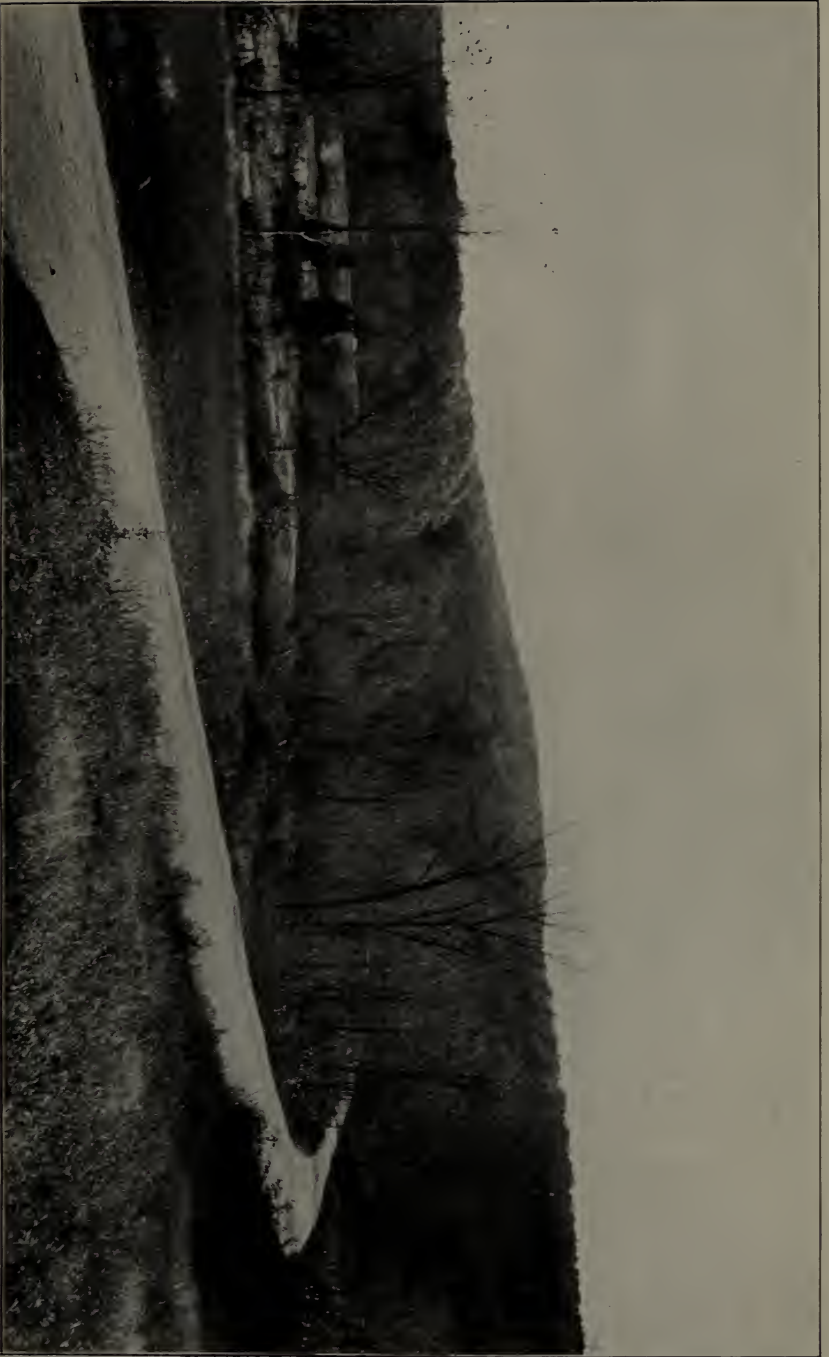
Balance in hands of State Treasurer, . . . . .	\$254,161 53
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Nantasket Beach Loan:—

Appropriations and receipts, . . . . .	\$705,881 50
Expenditures, . . . . .	705,881 50

Important construction work carried on during the year has advanced the system to an increased public use. Blue Hills Parkway has been extended from Canton Avenue to and through the Blue Hills Reservation to the headquarters on Hillside Street in the form of a single woods road, which, although only a part of the design for its ultimate completion, will be ample for all needs for many years to come, and will be more attractive in the mean time because kept in its simpler form. An office building, with dormitory and detention rooms, and a tool house to replace one destroyed by fire, have been finished, and a caretaker's house near by has been remodelled. A new path has been built from Hillside Street to the top of Great Blue Hill, and on Canton Avenue a refectory has been added to the group of buildings about the railway station at the foot of the main path to Great Blue Hill. Furnace Brook Parkway has been sub-





BLUE HILLS RESERVATION. — Unquity Road.



graded from Adams Street to the Blue Hills, and a bridge over the Granite Branch Railroad nearly completed. This portion of the parkway will be surfaced during the coming year. A short woods road in extension of the parkway is also being built, and in connection with the other woods roads already built will provide a circuit drive in the easterly portion of the reservation and a connection with Randolph Avenue. A contract for sub-grading a shore drive along Quincy Bay has been let, to be completed during 1906. At Boylston Street, Newton Upper Falls, construction has been well advanced upon a new bridge and dam of reinforced concrete with stone facing, similar in appearance to the older arch bridges upon the river. With other incidental structures to be completed during the coming year, this dam and bridge will replace those formerly at this point, provide a greatly needed improvement in the highway and restore the beauty of Hemlock Gorge. Construction of a roadway along the river front of the United States Arsenal grounds will be begun as soon as plans transferring the land have been executed by the United States government. Such transfer is authorized by special act of Congress, and the plans have been approved in preliminary form by the Secretary of War, so that it may be reasonably expected that this work will begin during the coming year. Lowell Memorial Park, Cambridge, which was originally acquired with the aid of funds provided by a committee of Cambridge citizens, has been marked, at their request and with the aid of their further gifts, as a memorial to James Russell Lowell, by an enclosing wall of brick and limestone, and at the points where Fresh Pond Parkway passes through the park, by posts bearing tablets with memorial inscriptions by President Charles W. Eliot of Harvard College. The driving road, sidewalk and planting space and bridges of Revere Beach Parkway between Main Street, Everett, and Fellsway near Wellington Bridge, have been finished and opened to public use. There is now a continuous park drive from Middlesex Fells and the surrounding municipalities and from Broadway Park in Somerville, a point two miles distant from the State House, through Everett, Chelsea and Revere, to Revere Beach.

This parkway and the driveway along Revere Beach, which is nearly completed, with the State highway and its extension to Ocean Street in the city of Lynn, will provide the shortest and most convenient driving road between Boston and the northern suburbs and the North Shore beyond, and will in some measure rival the park drives to the south of Boston.

The bath-house which this Commission was directed to build at Nahant Beach close by the city of Lynn was built and opened in time for a considerable use during the past summer. At the same time important changes were made in the alignment of the Nahant Road near by, to provide that heavy travel and electric cars might pass behind the bath-house, and that the road in front of the bath-house upon the ocean side might be reserved for pleasure uses.

King's Beach has been improved by a sea wall and esplanade from the monument in Swampscott to and around Red Rock in Lynn, and has already proved so satisfactory that a very strong public demand has been made for the extension of the improvement along the intervening strip of shore between Red Rock and the Nahant-Lynn Bath-house. Careful investigation is being made as to the cost of this extension. If it is found that it may be provided with available funds, it will not only be attractive in itself, but also add to the attractiveness of the portion already built, and furnish a connection with the Nahant Road which will bring into use a continuous ocean driveway six miles long, and of almost unrivalled beauty and usefulness.

Contracts for sub-grading an extension of the Mystic Valley Parkway along the banks of Mystic River to Alewife Brook, Powder House Boulevard in Somerville, and thence as a driveway along the river bank in Medford to Cradock Bridge, have been nearly completed. The bridges for this driveway are to be built during 1906, but further work cannot be done until after a decision is received from the State Board of Health upon the petition made in January, 1905, by this Board for permission to build a dam across Mystic River at Cradock Bridge. A decision in this matter will probably not be received until the Board of Health has com-



pleted the investigation and report in regard to Alewife Brook required of it under chapter 445 of the Acts of 1904.

Woods roads in Middlesex Fells along the westerly side of Winchester South Reservoir and thence to Forest Street have been completed. They are built upon permanent lines, and open up many beautiful views and provide a convenient means of crossing the westerly half of the reservation. Their cost has been met in part by the gift of \$4,000 from Messrs. Peter C. and Shepherd Brooks.

The matter of a street railway location in Fellsway from Somerville to and through Middlesex Fells to Stoneham has received careful attention during the past year. No formal grant has been made, but there is no delay or unwillingness on the part of this Board to make grants under reasonable regulations for the protection of the reservations and parkways and of the public. Public hearings were held on March 30, 1904, on petitions of the Boston Elevated Railway Company for a location from its tracks in Broadway, Somerville, to the Stoneham line, and of the Boston & Northern Street Railway Company for a location from that point to its tracks in Main Street in Stoneham. Careful and extended studies were made by the Landscape Architects and Engineer of the Commission, to determine a feasible line; and on Nov. 17, 1904, drafts of proposed locations and plans were informally communicated to the street railways. As a result of conferences, on April 5, 1905, an amended form of grant was submitted to the Boston Elevated Railway Company, preliminary to submitting an amended grant to the Boston & Northern Street Railway Company. No reply has been received except by informal inquiries and suggestions as to minor changes in the route, which have been in general informally assented to by this Board. As soon as the investigations thus being made are completed to an extent which warrants further action, the Board expects to provide for a short necessary extension of Fellsway, and to execute the formal papers of grant.

The maintenance and administration of the reservations and parkways have presented few new problems which call for special comment at this time. This is in a measure

evidence that the organization of the forces employed by the Board and the services rendered by these forces has been satisfactory. The superintendency of Blue Hills Division, made vacant by the death of Frank Dings, who for several years filled the position with faithful zeal, has been filled by advancement of Bartholomew J. Costello, formerly a sergeant in the United States Army, and for several years past a faithful officer and sergeant of the Metropolitan Park Police.

Nahant Beach Bath-house was opened in July as a branch of Revere Beach Bath-house, and was placed under the general supervision of Supt. Herbert W. West of Revere Beach Division, with an assistant who was advanced after several years of faithful service as a life-guard at Revere and Nantasket. Excellent service was maintained at this bath-house as well as at the other bath-houses, and the patronage was generally satisfactory, considering the coolness of the month of August.

Very serious problems in the administration and care of the roadways have been presented as to their use by automobiles. The restraint of reckless drivers, who do not understand that the roads of the park system, being provided for pleasure driving, ought not to be used by any one class of drivers in a manner which will cause danger or nervous worry to others, has required the making of rules to restrict speed, and has required at times the arrest or summons to court of those who violate the rules. This course has occasionally caused annoyance to people whose acts were perhaps not evidence of their intentions, and has caused some regrettable misunderstandings. It was very satisfactory to find during the past summer that a police officer mounted on a motor-cycle could restrain most of the reckless driving. The Commission, therefore, gladly revised its rules, and made them as liberal as even the counsel of the Massachusetts Automobile Association felt justified in recommending. The result has proved generally satisfactory, and since the change was made there have been few violations of the new rules and consequently few arrests.

The wear and tear of the roadways have been seriously in-



NAHANT BEACH PARKWAY — Nahant Beach Bath-house.





creased by swift-moving automobiles, which tear off the surface; and the expense for repairs has correspondingly increased beyond what was reckoned upon when the roads were built. With a view to securing an improved surface, experiments have been made with tar and petroleum treatment, but no satisfactory result has been secured thus far. It is evident, however, that effective construction and maintenance will require increased expense, and that for the present at least the period for watering will have to be extended.

The Legislature of 1905 made maintenance appropriations by items instead of as a lump sum. This method permits no transfers, and obviously requires that each item of the appropriation be large enough to cover the largest probable expense in the item for the year, and on the whole cannot result in economy in the cost of such maintenance. A good example is afforded in the experience of this Board in the maintenance of the driveway at Winthrop, where unusual repairs have been required during the past year to repair damage done by a very severe winter storm. A saving in the cost of watering made possible by unusually favorable conditions of wind and weather could not be made available for these extraordinary repairs; and, as the money appropriated for repairs was soon exhausted, less than the usual amount of roadway repairs could be made in 1905, and a larger amount of repairs than usual will have to be made in 1906.

Nantasket Beach presents a problem of maintenance in regard to its roadway which has not yet been adequately met. The loan appropriations have not been sufficient to provide for a development of the reservation corresponding to its needs, nor to the development provided for at other shore reservations. Each year the roadway known as County Road requires serious repairs, not only to provide for the throngs who come to the beach during the summer, but also for the ordinary highway uses which it must serve for the town of Hull, to which it is the only approach. The maintenance appropriation for each year provides for only temporary repairs, and these are greater than they ought to be

because of the bad alignment, grade and construction of the roadway. The previous recommendations of the Board for an appropriation sufficient to provide for permanent reconstruction of this roadway, and for protection of the reservation by acquirement of the rocky shore to the south-east, are renewed at this time.

The most serious problem of maintenance before the Board at the present time is that presented by the gypsy and brown-tail moths. Each year since systematic work by the Board of Agriculture was suspended these pests have increased everywhere with great rapidity. Meantime, public opinion has been divided as to the course of action to be pursued, and all action has been sporadic, and, speaking generally, ineffective. Various methods of repression have been tried, and more or less difference of opinion has developed as to which method is most effective. As a result, public opinion has been blinded to the real seriousness of the situation, and a timidity has governed the action of individuals and municipalities and of the State and of this Board in regard to the matter. Last year new legislation was enacted, under which the State resumed in a measure its responsibility for the work of repression, and required co-operation by individuals and municipalities. This legislation came too late for work to check the destructiveness and spread of the pests during 1905, but has led to work for repression in 1906 which is more extended than that of any previous year; and much may be hoped for if this activity is supplemented by continuous work and provision therefor as necessity may warrant. Last year the Legislature appropriated altogether \$27,000 for the work in the almost 10,000 acres of the Metropolitan Parks and Parkways. The amount proved insufficient, and was less effective than it would otherwise have been because it did not become available until March 17. Yet the measures made possible by this appropriation were so effective in the localities where complete work could be done that the foliage of trees upon the parkways, for example, was preserved even in sections where uncared-for trees upon immediately surrounding land were completely defoliated.

In the Middlesex Fells, where the most serious infestation existed, the methods adopted were efficient for the localities

where thorough work could be done, and where the lands were not near outside uncared-for lands, but were not sufficient to prevent an extended spread of the pests to points within the reservation where limited time and money made thorough work impossible. The special appropriation was exhausted by September. Serious consideration of the matter, and conference with Dr. Kirkland, the newly appointed Superintendent of the State for work against the gypsy and brown-tail moths, resulted in an understanding that he should inspect all the reservations and warn this Board of any spread of the moths, and that he should use his most serious efforts to suppress the moths in the neighborhood of all the reservations and parkways. Under these circumstances, and in view of the strong public feeling that it was useless to require work in the outside lands near the reservations and parkways unless efficient work was done within them, the Commission decided that so serious a condition existed as to warrant the use of a portion of the general funds of the loans until the time when the matter could be presented to the Legislature of 1906, and considered in connection with the maintenance appropriations for the year. In the Blue Hills, where Dr. Kirkland found for the first time that several colonies of the gypsy moth had established themselves, the work was immediately turned over to his supervision, to be done at the expense of the funds of this Board; but in the other reservations and parkways the Commission retained its charge of the work, subject to general inspection and advice from the State Superintendent. The result is that the work is in a much more advanced condition than ever before, and has been so conducted that a larger part of the fundamental work preliminary to direct work of repression has been done throughout the reservations than in any other previous year. In this work it has been the effort to first protect the surrounding municipalities and private lands against a spread of the gypsy moth from the reservations, and for that reason work has been done first on the outer portions of the reservations. This work will be extended to the rest of each reservation, if funds are provided in time for such work. It is impossible to make absolute predictions as to the efficiency of any class of work



against these pests, but it may be stated with certainty that there is no possibility of effective repression except by thorough work extended over the entire region which may afford food and cover to the gypsy moth; and that it is not possible to do progressively effective work if the appropriation of funds is postponed each year until after effective work can be done, nor if it is postponed or done with half-way measures until an effective parasite has been developed. Delay means a deliberate taking of chances that a large part and perhaps all valuable trees will be destroyed. Nor ought effective work to be postponed until an agreement is reached as to which method of repression is best. Removal of diseased and overcrowded trees, creosoting of nests, banding trees with such sticky materials as will not injure them, destroying the caterpillars, spraying, surrounding the worst colonies with lines of oiled hay or boards smeared with sticky substances, and even burning over the ground, are all effective measures, which must be used as opportunity and the necessities of each case seem to warrant.

The comparative cost and availability under all circumstances of the various methods of work is being gradually determined; and the experience gained is making it certain that, while any single locality may be almost absolutely protected, yet only prompt, continuous work over the entire area infested will effectively reduce the amount of work to be done in each year, and will bring a general repression even equal to that which existed a few years ago. It is therefore hardly possible to limit the earnestness of language with which this Commission urges that adequate and prompt provision be made for efficient work wherever the gypsy moth exists, and that such provision be continued until the moth is completely checked; and that at the same time every reasonable effort be made under the State and national authority and supervision to find some parasite or more effective method of destroying both the gypsy and the brown-tail moths. The extreme work and expense now required from every land owner is bringing about the destruction of a large part of the woods in the Metropolitan District. It is therefore all the more important that the reservations of the Metropolitan Parks System be saved.



MIDDLESEX FELS RESERVATION. — Brooks Road and Porter's Cove.



In view of the facts above stated, it is recommended that the Metropolitan Parks Loan be recompensed by an appropriation to restore the funds necessarily used before the annual appropriations could become available, and that this amount be increased by a substantial further amount, to be available for the contingencies of this most uncertain work whenever the maintenance appropriations are insufficient for the work which seems to be advisable before the maintenance appropriations of the following year can become available.

The work in which this Board is engaged was outlined in its general form in the report and plan submitted by a preliminary commission to the Legislature of 1893. Its beginning was authorized by chapter 407 of the Acts of 1893, known as the Metropolitan Park Act. It has been advanced from year to year under additional appropriations and legislation, of which the most important was that of chapter 288 of the Acts of 1894, known as the Boulevard or Parkway Act, and that of chapter 464 of the Acts of 1899, known as the Nantasket Beach Act. This legislation and the appropriations have generally resulted from public petition and hearing before the Legislature to enable or direct the Commission to carry out detailed plans for some portion of the general plan presented by the preliminary commission. Singularly few additions or changes have been made except in details. In 1903 this work had so far advanced that considerable appropriations were made, as above stated in this report, to provide for annual work for five years in completion of the Metropolitan Parks System. The result has been steady, consistent and economically accomplished progress, which, at the completion of a work now planned and entered upon for the full period of five years, will at the expiration of that period in 1907 show a substantial completion of the plan of the preliminary commission.

All of which is respectfully submitted,

WILLIAM B. DE LAS CASAS.  
EDWIN B. HASKELL.  
EDWIN U. CURTIS.  
DAVID N. SKILLINGS.  
ELLERTON P. WHITNEY.



## REPORT OF THE SECRETARY.

---

Hon. WILLIAM B. DE LAS CASAS, *Chairman, Metropolitan Park Commission.*

SIR:— I herewith present my report for the year ending Dec. 1, 1905. It is subdivided as follows: 1. Acquisition of lands. 2. Administration. 3. Miscellaneous. 4. Finances.

### 1. ACQUIREMENT OF LANDS.

The area of park lands has not been increased by any large additions during the past year. In Revere a strip of land 70 feet in width has been acquired, extending from Charles Eliot Circle at the south end of Revere Beach to Leverett Avenue; and a block of land containing 1.39 acres, lying between this point and the sea, has also been purchased. This extension from Revere Beach Reservation is designed to form the first link in the connection by suitable roadways of Revere Beach with the driveway at Winthrop Shore. The land between Eliot Circle and Leverett Avenue is substantially all contributed to the proposed improvement by the owner, the Boston, Revere Beach & Lynn Railroad. Nahant Beach Parkway has been extended by the purchase of a block of land in Lynn lying between the Lynn and Nahant boundary line and Washington Street in Lynn. The land thus obtained made it possible to lay out a street for traffic purposes in the rear of the new Nahant Beach Bath-house, and to exclude all but pleasure travel from the portion of Nahant Road which passes in front of the bath-house. A location in this new street was also given to the electric railway recently opened between Lynn and Nahant, so that it does not interfere with the comfort or pleasure of persons using the roadway along the crest of the beach. In Winchester a small parcel of land on Bacon



Street has been purchased for the purpose of improving the entrance into Mystic Valley Parkway at that point. In Quincy land has been taken for the slopes to the Granite Branch Bridge of the Old Colony Railroad, where it crosses Furnace Brook Parkway; and an exchange of land has been made with an adjoining owner at Crescent Street, in order to arrange suitably the junction of the street with this parkway. In settlement for land taken for Fresh Pond Parkway, and as consideration also for the imposition of parkway restrictions on abutting lands, two irregular parcels of land at the intersection of the parkway with Larch Street in Cambridge have been conveyed to the adjoining owner. Fellsmere Park in Malden through which Fellsway East passes has been transferred for care and control by the city of Malden to this Commission, and an adjoining estate at Vista Street which is needed for future development has been bought at private sale. A portion of the land taken in Boston for the approach to Mattapan Bridge at the beginning of Blue Hills Parkway has been transferred to the control of the city of Boston, and has been incorporated in Mattapan Square. A few acres of land in Canton have been purchased which were needed for improving the boundaries of the land given to the public by the late Henry L. Pierce as a part of the Blue Hills Reservation, and a taking to confirm the title has been made of all the lands in Canton and Randolph shown on the Pierce plan. In building a portion of the North Border Road of Middlesex Fells Reservation in Stoneham, it was found desirable to acquire a small lot of wild land near the Bear Hill Entrance. The construction of the driveway at Revere Beach from Revere Street to the Point of Pines leaves at several points small strips of land between taking and construction lines, and these strips are being sold to the abutting owners at a nominal price, for the purpose of bringing about an orderly development of the adjoining property. Similar strips at Winthrop Shore which were not required for the driveway as constructed have also been conveyed in the same manner. The remainder of several estates which were acquired by purchase at Lynn in the acquirement of the Lynn Shore Reservation have also been

sold, and will be developed by the purchasers in accordance with the plan of the reservation. At Milton a small parcel of land at Milton Lower Mills was released to the owners of the Chocolate Mills, as it seemed to be necessary for the proper development of their manufacturing plant and not essential to the park holdings at that point; and for similar reasons, a small strip of river bank in Waltham was reconveyed to the Waltham Gas and Electric Company.

## 2. ADMINISTRATION.

The method of administration has not been changed. The work of the Commission is divided among the departments of Landscape Architects (advisory), Engineering, Law and Claims, and Superintendence, each department reporting to the Commission through the Secretary. The general office and Engineering Department are located at 14 Beacon Street, in Boston. The general office force, in addition to the Secretary, consists of four clerks and stenographers, purchasing clerk, paymaster, telephone clerk and messenger. Additional clerical assistance has been found necessary the past year, and the clerical force will need to be slightly increased the coming year. Three stenographers are employed in the Law and Claims Department. The Engineering Department employs 45 persons, in addition to the Chief Engineer. The reservations and parkways are grouped in seven divisions, each of which is in charge of a superintendent who is held responsible for the maintenance and policing of his division. The number of laborers employed varies with the season of the year and the amount of work on hand. A considerable force has been employed for a large part of this year in the work of suppression of the gypsy and brown-tail moths. The police force consists of 7 sergeants, 2 inspectors and 79 patrolmen. The police are assigned and transferred in the divisions according to the requirements in each from time to time; and in seasons when police work does not necessitate the use of the entire force, a portion of the men are required to assist in suitable work in the reservations.

# Metropolitan Park System—Dec. 1, 1905.

	RESERVATIONS (ACRES).														PARKWAYS (ACRES).											PARKWAYS (MILES).														
	Blue Hills.	Middlesex Fells.	Stony Brook.	Beaver Brook.	Hart's Hill.	Hemlock Gorge.	Charles River.	Mystic River.	Neponset River.	King's Beach and Lynn Shore.	Revere Beach.	Winthrop Shore.	Quincy Shore.	Nantasket Beach.	Total Acres.	Blue Hills.	Middlesex Fells.	Revere Beach.	Mystic Valley.	West Roxbury.	Neponset River.	Fresh Pond.	Furnace Brook.	Nahant Beach.	Lynnway.	Total Acres.	Grand Total, Reservations and Parkways (Acres)	Blue Hills.	Middlesex Fells.	Revere Beach.	Mystic Valley.	West Roxbury.	Neponset River.	Fresh Pond.	Furnace Brook.	Nahant Beach.	Lynnway.	Total Miles.		
<i>Cities.</i>																																								
1	Boston,	-	195.16	-	-	-	144.31	-	81.36	-	-	-	-	-	420.83	.27	-	-	72.37	-	-	-	-	-	-	72.64	493.47	.015	-	-	-	1.510	-	-	-	-	-	-	1.625	1
2	Cambridge,	-	-	-	-	-	38.07	-	-	-	-	-	-	-	38.07	-	-	-	-	-	-	-	-	-	7.47	45.54	-	-	-	-	-	-	-	-	-	-	-	.620	2	
3	Chelsea,	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21.21	-	-	-	-	-	-	-	7.47	21.21	-	-	.814	-	-	-	-	-	-	-	-	.814	3	
4	Everett,	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	31.26	-	-	-	-	-	-	-	31.26	31.26	-	-	1.653	-	-	-	-	-	-	-	-	1.653	4	
5	Lynn,	-	-	-	-	-	-	-	-	-	-	-	-	-	11.70	-	-	-	-	-	-	-	.29	.29	11.99	-	-	-	-	-	-	-	-	-	.120	.120	5			
6	Malden,	-	59.57	-	-	-	-	-	-	-	-	-	-	-	59.57	-	19.33	-	-	-	-	-	-	-	19.33	78.90	-	1.515	-	-	-	-	-	-	-	-	1.515	6		
7	Medford,	-	669.08	-	-	-	-	265.43	-	-	-	-	-	-	934.51	40.98	8.10	39.02	-	-	-	-	-	-	88.10	1,022.61	-	2.350	.482	1.120	-	-	-	-	-	-	-	3.952	7	
8	Melrose,	-	177.54	-	-	-	-	-	-	-	-	-	-	-	177.54	-	-	-	-	-	-	-	-	-	-	177.54	-	-	-	-	-	-	-	-	-	-	-	-	8	
9	Newton,	-	-	-	-	4.27	191.11	-	-	-	-	-	-	-	195.38	-	-	-	-	-	-	-	-	-	-	195.38	-	-	-	-	-	-	-	-	-	-	-	-	9	
10	Quincy,	2,562.57	-	-	-	-	-	-	-	-	-	37.78	-	-	2,600.35	-	-	-	-	-	-	68.77	-	-	68.77	2,600.12	-	-	-	-	-	-	-	3.326	-	-	-	3.326	10	
11	Somerville,	-	-	-	-	-	-	8.98	-	-	-	-	-	-	8.98	13.98	-	-	-	-	-	-	-	-	13.98	22.96	-	.740	-	-	-	-	-	-	-	-	.740	11		
12	Waltham,	-	-	-	42.77	-	39.60	-	-	-	-	-	-	-	82.37	-	-	-	-	-	-	-	-	-	-	82.37	-	-	-	-	-	-	-	-	-	-	-	-	12	
13	Woburn,	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13		
<i>Towns.</i>																																								
14	Arlington,	-	-	-	-	-	-	15.16	-	-	-	-	-	-	15.16	-	-	2.54	-	-	-	-	-	-	2.54	17.70	-	-	-	-	-	-	-	-	-	-	-	-	-	14
15	Belmont,	-	-	-	15.58	-	-	-	-	-	-	-	-	-	15.58	-	-	-	-	-	-	-	-	-	-	-	15.58	-	-	-	-	-	-	-	-	-	-	-	-	15
16	Braintree,	67.84	-	-	-	-	-	-	-	-	-	-	-	-	67.84	-	-	-	-	-	-	-	-	-	-	-	67.84	-	-	-	-	-	-	-	-	-	-	-	-	16
17	Brookline,	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17	
18	Canton,	471.34	-	-	-	-	-	-	-	-	-	-	-	-	735.60	-	-	-	-	-	-	-	-	-	-	735.60	-	-	-	-	-	-	-	-	-	-	-	-	-	18
19	Cohasset,	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19	
20	Dedham,	-	-	-	-	-	-	-	234.54	-	-	-	-	-	234.54	-	-	-	-	-	-	-	-	-	-	-	234.54	-	-	-	-	-	-	-	-	-	-	-	-	20
21	Dover,	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21		
22	Hingham,	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22		
23	Hull,	-	-	-	-	-	-	-	-	-	-	-	-	25.59	25.59	-	-	-	-	-	-	-	-	-	-	25.59	-	-	-	-	-	-	-	-	-	-	-	-	23	
24	Hyde Park,	-	-	268.56	-	-	-	-	-	-	-	-	-	-	335.66	-	-	-	-	-	21.82	-	-	-	21.82	357.48	-	-	-	-	-	-	.720	-	-	-	-	.720	24	
25	Milton,	1,547.68	-	-	-	-	-	-	270.33	-	-	-	-	-	1,818.01	83.35	-	-	-	-	51.76	-	-	-	135.11	1,953.12	2.250	-	-	-	-	-	1.540	-	-	-	-	3.790	25	
26	Nahant,	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	68.99	68.99	68.99	-	-	-	-	-	-	-	-	-	2.230	-	-	2.230	26	
27	Needham, [Randolph],	257.00	-	-	-	14.24	-	-	-	-	-	-	-	-	14.24	-	-	-	-	-	-	-	-	-	-	14.24	-	-	-	-	-	-	-	-	-	-	-	27		
28	Revere,	-	-	-	-	-	-	-	-	-	67.42	-	-	-	67.42	-	66.76	-	-	-	-	-	-	4.98	71.74	139.16	-	-	2.291	-	-	-	-	-	-	.570	2.861	-	28	
29	Saugus,	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	29		
30	Stoneham,	-	730.01	-	-	-	-	-	-	-	-	-	-	-	730.01	-	-	-	-	-	-	-	-	-	-	730.01	-	-	-	-	-	-	-	-	-	-	-	-	30	
31	Swampscott,	-	-	-	-	-	-	-	-	-	-	-	-	-	3.30	-	-	-	-	-	-	-	-	-	-	3.30	-	-	-	-	-	-	-	-	-	-	-	-	31	
32	Wakefield,	-	-	-	-	23.09	-	-	-	-	-	-	-	-	23.09	-	-	-	-	-	-	-	-	-	-	23.09	-	-	-	-	-	-	-	-	-	-	-	-	32	
33	Watertown,	-	-	-	-	-	75.11	-	-	-	-	-	-	-	75.11	-	-	-	-	-	-	-	-	-	-	75.11	-	-	-	-	-	-	-	-	-	-	-	-	33	
34	Wellesley,	-	-	-	-	4.58	66.07	-	-	-	-	-	-	-	70.65	-	-	-	-	-	-	-	-	-	-	70.65	-	-	-	-	-	-	-	-	-	-	-	-	34	
35	Weston,	-	-	-	-	-	76.92	-	-	-	-	-	-	-	76.92	-	-	-	-	-	-	-	-	-	-	76.92	-	-	-	-	-	-	-	-	-	-	-	-	35	
36	Westwood,	-	-	-	-	-	-	6.57	-	-	-	-	-	-	6.57	-	-	-	-	-	-	-	-	-	-	6.57	-	-	-	-	-	-	-	-	-	-	-	-	36	
37	Weymouth,	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	37		
38	Winchester,	-	261.93	-	-	-	-	-	-	-	-	-	-	-	261.93	-	-	50.20	-	-	-	-	-	-	50.20	312.13	-	-	1.780	-	-	-	-	-	-	-	-	1.780	38	
39	Winthrop,	-	-	-	-	-	-	-	-	-	16.73	-	-	-	16.73	-	-	-	-	-	-	-	-	-	-	16.73	-	-	-	-	-	-	-	-	-	-	-	-	39	
		4,906.43	1,898.13	463.72	58.35	23.09	23.09	631.19	289.57	924.16	15.00	67.42	16.73	37.78	25.59	9,380.25	83.62	74.29	127.33	91.76	72.37	73.58	7.47	68.77	69.28	4.98	673.45	10,053.70	2.265	4.605	5.240	2.900	1.510	2.200	.520	3.226	2.230	.690	25.546	

THE UNIVERSITY OF CHICAGO

PHYSICS DEPARTMENT

PHYSICS 354

LECTURE 1

1.1. THE CLASSICAL LIMIT

1.2. QUANTUM MECHANICS

1.3. THE SCHRÖDINGER EQUATION

1.4. THE HEISENBERG UNCERTAINTY PRINCIPLE

PHYSICS 354



*Landscape Architects.*

The report of Olmsted Brothers, the Landscape Advisers of the Commission, is presented in an Appendix to this report. In it will be found a summary of the matters upon which they have been called upon to render service, and the explanation they desire to make in regard to the work they have done.

*Engineering Department.*

A large amount of important construction work has been carried on this year under the direction of this department. An extension of Blue Hills Parkway in Milton has been built from Canton Avenue to Harland Street, and from that point a new entrance road to the reservation has been constructed, which brings one into Hillside Street a short distance from Hoosicwhisick Pond. There is now, therefore, a direct route provided from Grove Hall in Boston to the heart of the Blue Hills. The sub-grading of Furnace Brook Parkway in Quincy from Adams Street to the Blue Hills Reservation is completed. A concrete bridge with rock facing has been built to carry the Granite Branch of the New York, New Haven & Hartford Railroad over this parkway at West Quincy, and will probably be in use in a few weeks. In the Blue Hills a connection between Furnace Brook Parkway and Saw Cut Notch Road is already built, and an extension of this road is under way which will end at the Administration Road which runs through the centre of the reservation. The westerly roadway of Neponset River Parkway between Brush Hill Road and Blue Hill Avenue in Milton is built, and the space reserved for electric cars is already occupied by the location of the Blue Hill Street Railway, which furnishes a means of transportation to the foot of Great Blue from Readville, in addition to its earlier route from a connection with the Elevated Railroad at Mattapan Square. Work has been begun on sub-grading the driveway along Quincy Shore between Squantum Street and the National Sailors' Home. This driveway will ultimately connect with Furnace Brook Parkway, and thus with the Blue Hills. The last section of Revere Beach

Parkway, between Main Street in Everett and Fellsway in Medford, has been finished, and was opened to public use on August 2. This is now the longest parkway of the Metropolitan System. It is already largely used, and will undoubtedly be more used when the connecting roadways between Revere Beach and Lynn are ready for travel. The work of extending the development of Revere Beach from Revere Street to the Point of Pines has continued through the year. The roadway is substantially completed to a point below Oak Island, but considerable sub-grading remains to be done from that point to the Point of Pines property. The surfacing of this portion and of Lynnway from the end of the reservation to Saugus River Bridge will have to be postponed until spring. Saugus River Bridge is completed, including the installation of a Scherzer roll draw. On the Lynn side of the bridge the Massachusetts Highway Commission have made good progress in completing the approach from Commercial Street to the bridge. The city of Lynn has begun the construction of a highway in extension of this route from Commercial Street to Broad Street, and it seems probable that within a year it will be possible to drive over these connecting parkways and highways from Broadway Park in Somerville to Broad Street in Lynn, a distance of 11 miles. At Lynn Shore the sea wall which was constructed last year has been carried around Red Rock and to the present boundary line of the reservation. The roadway along the top of the bluff and the granolithic promenade along the top of the wall have been completed. The driveway was opened to public use on September 18. At Nahant Beach, Nahant Road in front of the new bath-house was relocated and raised so as to permit the construction of subways to the beach from the bath-house. The portion of the highway transferred to the Commission by the town is 1,125 feet long. Concrete edgestone and gutters were built on both sides of the road, and a granolithic walk laid in front of the bath-house. A traffic road was built in the rear of the bath-house, in which also the electric car line has its rails. The road in Middlesex Fells from the east dam of the Winchester South Reservoir to Porter's

Cove at the southwesterly corner of Spot Pond is completed, and a spur from this road to the road leading to Winchester across the Causeway is also finished. These roads offer some of the finest views in the Fells. Considerable work has been done on Mystic River in Medford, Arlington and Somerville. The work has been dredging and straightening of the river channel and depositing the material on the banks, where it will be needed in building the extension down river of Mystic Valley Parkway. At Newton Upper Falls on the Charles River a concrete bridge with rock facings is under construction to carry the highway known in Newton as Boylston Street and in Wellesley as Worcester Street. This bridge consists of two arches, of 50 feet and 14 feet span respectively. The bridge, including parapet walls, is 73 feet wide, and carries the tracks of the Boston & Worcester Street Railway Company in the centre. The old dam at this point, which was in bad repair, is being replaced by a concrete dam of the same height. A beginning has been made on a path along the line of the future driveway on the northerly bank of the Charles River between Arsenal Street in Watertown and the Cambridge Hospital. The Engineering Department, in addition to the larger work, of which the details are given in the report of the Engineer, has furnished engineering supervision for minor work in the reservations and parkways; has furnished inspection to ensure the compliance with the terms of permits issued by the Commission to towns, cities, corporations and individuals to do work of various kinds on park land; has inspected and reported on condition of bridges; has prepared plans and estimates in connection with proposed work of the Commission; and has made the usual variety of plans required by the various departments in the course of their work.

*Law and Claims Department.*

Outstanding claims for land takings to the amount of \$63,227.87 have been disposed of during the past year, and were divided among the reservations and parkways as follows: Charles River Reservation, 1; Neponset River Reservation, 1; Mystic River Reservation, 1; Winthrop Shore

Reservation, 1; Blue Hills Reservation, 4; Revere Beach Parkway, 2; Middlesex Fells Parkway, 3; Furnace Brook Parkway, 3; Nahant Beach Parkway, 1; Winthrop Parkway, 2; Neponset River Parkway, 1; Mystic Valley Parkway, 1; Fresh Pond Parkway, 1. There remain to be adjusted 33 claims, divided as follows: Blue Hills Reservation, 1; Charles River Reservation, 9; Neponset River Reservation, 8; Mystic River Reservation, 2; Quincy Shore Reservation, 1; Revere Beach Parkway, 4; Middlesex Fells Parkway, 4; Mystic Valley Parkway, 1; Furnace Brook Parkway, 2; Neponset River Parkway, 1. The policy of the Commission, to avoid as far as practicable any further acquisitions of land unless satisfactory prices therefor are first obtained in the form of binding options, has been satisfactorily followed during the past year, and no new claim of substantial amount has been created. The legal work of this department, outside of the trial of cases, has continued to be in the charge of George Lyman Rogers, Esq., and his assistant, Stanley M. Bolster, Esq., who are designated by the Attorney-General for this purpose.

#### *Superintendence.*

The reservations and parkways of the Metropolitan Parks System are for convenience of administration grouped in seven divisions, as follows: Blue Hills Division; Middlesex Fells Division; Revere Beach Division; Speedway Division; Riverside Division; Nantasket Beach Division; Beaver Brook Division. Each division is in the charge of a superintendent, who reports directly to the Commission through the Secretary. The regular work of maintenance and policing has been described in previous reports, and requires no further mention at this time than to call attention to the fact that it steadily increases in detail with the development of the system and the increased use of the parks by the public. Matters of special interest are as follows:—

BLUE HILLS DIVISION: BARTHOLOMEW J. COSTELLO, *Superintendent.*

Frank Dings, who had been superintendent of the Blue Hills Reservation and the other reservations and parkways administered with the Blue Hills for a period of ten years,



died on April 15. His faithful service has been noted by the Commission on its records, and his deep interest in the work in which he was engaged will be remembered by all with whom he was brought in contact. Bartholomew J. Costello, who had been acting superintendent during Mr. Dings' illness, was appointed superintendent on September 10. The new roads in the Blue Hills and the extension of Blue Hills Parkway from Canton Avenue to Harland Street, which have already been described, have been built by the forces of the reservation under the direction of the superintendent and with the assistance of the supervisor of construction. A path has been built from the summit down the eastern side of Great Blue. It leaves Charles Eliot Path a short distance from the memorial bridge, and passing down through Wild Cat Notch leads across the hills to Hillside Street a few steps from Hoosicwhisick Pond. In conjunction with the old summit path from Canton Avenue it furnishes an interesting walk with extensive views. A concrete wall and iron fence have been built around the observatory, of a design approved by the Commission. A simple refectory building has been built at the foot of Great Blue Hill, near the car station of the Blue Hill Street Railway Company. Roads have been repaired, many of the short bridges have been replaced by drain pipe culverts, old and new roads, paths and fireguards have been cut out. Considerable forestry work has been done in the line of pruning and thinning, and 30,000 pine seedlings have been planted. The stone office building, which was in course of erection on Hillside Street at the date of the last report, was completed at a most convenient time. On the night of February 20 the old wooden building used for office and tool house took fire, apparently from a defective chimney, and it and the contents were completely burned. The office and headquarters are now conveniently situated in the new building, and a new work shop and tool house has been built in a more convenient location. The completion of the new headquarters building has led to the rearrangement and grading of the grounds around headquarters, which now have an attractive appearance and are conveniently arranged for administrative purposes. In connection with these changes an old farm-

house near the stable was altered over for a boarding house, where several of the police and employees are accommodated. The area of the reservation is so large that it is very desirable to have a number of the employees within close call of headquarters. In Stony Brook Reservation the dam at the skating pond has been repaired and some forestry work done. Along Neponset River the park holdings have been kept clean, and at Mattapan the fences and walls of the old Hollingsworth place have been removed and the grounds opened to the public. Fences have been built along the boundaries of that portion of Neponset River Parkway between Brush Hill Road and Blue Hill Avenue, and a portion of this parkway in Hyde Park near the Sturtevant Blower Works has been graded, so that the people living near by may use the land for a playground until it is required for the construction of the parkway. At the junction of Blue Hills Parkway and Canton Avenue a rearrangement of the roadway and grass spaces has been made in connection with the extension of the parkway. Quincy Shore has not called for anything but the usual care and policing. The brook in Furnace Brook Parkway has been cleared, some fencing has been done, and the trees at the Dorothy Q. House given attention. The gypsy moth has appeared in the towns and cities in the vicinity of the Blue Hills, and some traces have been found of this pest in the reservation itself. Work has already been started, in the hopes that it may be possible to suppress the pest before it gets beyond control and does irreparable damage, and to be effective must be actively continued during the coming year.

MIDDLESEX FELLS DIVISION: C. P. PRICE, *Superintendent.*

The most serious problem in the Middlesex Fells Reservation this year has been that caused by the gypsy and brown-tail moths. A large amount of work has been done in thinning out the diseased and worthless trees, creosoting nests of the gypsy moth, cutting and burning to a limited extent the nests of the brown-tail moth, and banding and spraying the trees.

The new road from the east dam of Winchester South

Reservoir to a point opposite Porter's Cove at the southerly end of Spot Pond has been completed, and a connection has been built between this road and the road from Winchester which crosses the causeway between the Winchester reservoirs. These roads afford convenient drives to the foot of Spot Pond from both West Medford and Winchester, and afford some of the most charming views in the Fells. A portion of the North Border Road in extension of South Street to Bear Hill Entrance in Stoneham has been begun and is nearly completed. Woodland Road has been widened near the entrance of Quarter Mile Road. The flock of sheep in the sheep pasture and the water fowl at Dark Hollow Pond have afforded much enjoyment to visitors, and the collection of birds and small animals at the headquarters on Pond Street has been visited by large numbers of people. During the winter season provision has been made for feeding the wild birds, many of which seem to remain on the reservation through the winter.

All buildings but two houses occupied by employees have been removed from the lands taken for Mystic River Reservation. These lands have also been cleared of gypsy and brown-tail moths.

Middlesex Fells Parkway and Wellington Bridge have called for the usual care and repairs. On one section of the parkway experiments are being made in treating the road bed with oil in several different ways, the effect of which can not yet be determined. The city of Malden has transferred the care and control of Fellsmere Park, through which the parkway passes, to this Board, and it has been cared for in connection with the parkway. This has involved a considerable amount of moth work.

The bed of Aberjona River in Mystic Valley Parkway has been thoroughly cleaned. The trees have been cleared of gypsy and brown-tail moths. The corner of Bacon Street has been rounded at its junction with the parkway, improving the approach to the parkway at this point. Water fowl have been placed upon the upper Mystic Pond. This pond has been largely used by the people of this neighborhood for pleasure boating.



REVERE BEACH DIVISION: HERBERT W. WEST, *Superintendent.*

The use of Revere Beach by the public continues to increase. During the summer season the forces of the reservation are completely occupied with the problem of general care and policing. The continuance of good order and apparent general satisfaction on the part of the people visiting the reservation is to be noted. New shelter buildings have been constructed at Revere Street and opposite Oak Island, and concrete seats have been built on the sea side of the shelter opposite the bath-house. The bath-house was opened on June 17 and closed on September 10. The total number of bathers was 142,942. The largest number on any day was 7,171 on August 13. The receipts for the season were 31,255.24, and the expenditures for the year \$30,502.29. It has been found satisfactory to make a large part of the suits required for this and the other bath-houses at the bath-house sewing room during the winter season.

Revere Beach Parkway has been much more in use since it was completed through to Medford. Beyond moth work and new tree planting only general care has been required.

The severe storms of last winter threw a large amount of material on the roadway at Winthrop Shore, and wrecked a large section of the iron fence. This is a contingency to be expected at any time, and provision for repairs of this character should be estimated in providing for the maintenance of this exposed reservation.

The portion of Lynn Shore Reservation already completed has been largely used, and on pleasant afternoons and evenings the promenade is thronged with people. The town of Swampscott has co-operated with the Commission by improving the section of Humphrey Street adjoining King's Beach, and the relocation of sidewalk and electric poles has much improved the appearance of the easterly end of this reservation. The wall around the Red Rock section has been completed, and a granolithic walk at the top of the wall leads to steps down to the ledges. The view of the Nahant Beach Bath-house in Nahant Beach Parkway is very attractive from this point. This bath-house was completed and



WINTHROP SHORE RESERVATION. — Driveway after storm of Jan. 25, 1905.





opened on July 10. Although of a different style of architecture from either the Revere or Nantasket bath-houses, its general arrangement is much the same. The centre building contains the accommodations for administration, public sanitariums and police sub-station. On either side are the yards containing the bath-houses, of which there are 300 on the men's and 215 on the women's side. The yards connect with the beach by subways under the Nahant Road, uniting in a single exit on the beach. The cost of the bath-house, exclusive of the changes in roads and grading, was \$67,794.55. The bath-house was opened on July 10 and closed on September 10. It was used by 25,065 bathers. The largest number on a single day was 1,710, on August 13. The receipts for the season were \$5,086.55, and the expenditures for the year \$6,365.19. A section of Nahant Road, upon which the bath-house fronts, 1,125 feet in length, was transferred by the town to the care and control of this Commission in July. This section and also the new traffic road in the rear of the bath-house has been kept in repair and lighted and watered. In co-operation with the town forester of Nahant, some planting has been done at points along the line of the parkway. Some bulkhead work has been built at points where the protection of the roadway made it advisable.

RIVERSIDE DIVISION: ALBERT N. HABBERLY, *Superintendent.*

Considerable has been done to add to the convenience of the people using this section of Charles River. Foot paths have been built along the shore from Weston Bridge to Norumbega Tower, and along the shore of Robert's Cove and Cedar Point. Seats have been placed on the bank opposite the band stand at Riverside and at other places along the shore. Small bath-houses have been built for the use of boys and men, at Newton Lower Falls, Auburndale and Waltham. In the boating section stumps and stones have been removed from channels. During the summer, range lights were maintained from Riverside to Waltham, and proved to be of much assistance to people using the river in the evening. During the skating season a section of the river near Weston Bridge was kept cleared and was largely

used. The use of the river for canoeing has been greater than for several years. Band concerts have been given almost every Saturday evening, either at the club houses or at the band stand on the reservation at Riverside. The annual regatta was held at Waltham on June 17, and there have been several illumination nights with displays of lanterns and fireworks. A large number of church and private picnics have been held at Pine Grove, Forest Grove and Hemlock Gorge. There has been no drowning accident during the year. The total number of accident cases treated at the emergency room and by the officers was 178, of which 170 represent cases of capsizing from canoes, falling into the water from the banks or floats and breaking through the ice. There have been 43 actual rescues from drowning by the police officers, who deserve credit for the courageous and judicious manner in which they performed their duties.

Considerable forestry work has been done along the banks of the river, fences have been renewed, paths kept clear and rubbish removed from the bank. The brown-tail and gypsy moth have appeared in this section, and vigorous work is being done to prevent damage from them.

SPEEDWAY DIVISION: JOHN L. GILMAN, *Superintendent*.

In addition to the spring and fall races, which were held under the auspices of the driving clubs, the Speedway was largely used during the sleighing season, which continued for seven weeks. Soldiers' Field Road and the Speedway itself have both been resurfaced this year. The grade has been raised of the small pleasure ground for children, which was built on the former site of Fuller's Wharf, at the foot of Market Street in Brighton. Thirty-six swings and sixteen teeter boards have been installed, and the place is used by large numbers of children from the neighborhood. At the end of Charles River Road in Watertown the remaining buildings formerly belonging to the Walker Pratt Company have been torn down. Some forestry work and planting has been done, and considerable accomplished in suppression of the gypsy and brown-tail moth. At Lowell Memorial Park, which is a part of Fresh Pond Parkway,

ornamental posts have been placed at the entrances and a low wall built along Brattle and Mount Auburn streets. These improvements have been made in co-operation with the Lowell Memorial Association, to whose efforts the acquisition of this land was largely due. Suitable tablets will be placed upon the posts as soon as they have been cast.

BEAVER BROOK DIVISION: ROBERT ELDER, *Superintendent.*

Considerable work was required this year to protect the oaks and other interesting tree growth of this reservation from the devastation of the brown-tail and gypsy moth, and it will be necessary the coming year to do even more extensive work of this kind. On account of the raising of the grade of Trapelo Road by the town of Belmont, the wall along this boundary has been built up to correspond with the change. This reservation continues to be visited by large numbers of picnickers during the summer. In winter the ponds are favorite resorts for skating.

NANTASKET BEACH RESERVATION: MOODY LEIGHTON, *Superintendent.*

There appears to have been a larger use of this reservation than for several years preceding, which is probably due to the establishment of amusement enterprises on adjacent lands. The weather was also favorable, as is shown by the increased use of the bath-house, which was opened on July 1 and closed on September 4. The total number of bathers was 30,097, and the largest number on one day 1,594, on July 4. The receipts for the season, including amount received from sale of steam to tenants, were \$8,705.53, and the expenditures for the year \$7,111.70. Some slight alterations in the line of convenience were made in the hotel buildings. An additional sanitary was built next to the bath-house. A bulkhead was constructed from the bath-house to the foot of Atlantic Hill, and the old pond formerly used by the Chutes filled up. Grading was carried along Nantasket Avenue in both directions from the hotel buildings, which in time will result in giving a much more pleasing appearance to the reservation. The hotel buildings have also been painted.

## 3. MISCELLANEOUS.

The Supreme Judicial Court in February appointed commissioners to determine and make award of the proportion in which the towns and cities of the Metropolitan Parks District should make payments during the next five years towards the interest, sinking fund and maintenance requirements of the Metropolitan Parks System, as required by chapter 419 of the Acts of the Legislature for the year 1899. The same commissioners were also appointed to perform a similar service in relation to the cost of Wellington Bridge, as required by chapter 491 of the Acts of the Legislature for the year 1901. The commissioners have filed their awards in both cases, and their reports have been approved by the court. The awards, together with such of the pleadings and decrees as are necessary for a proper understanding of them, are printed in the Appendix to this report. Under the provisions of chapter 457 of the Acts of the Legislature for the year 1905, the apportionment for this year has been made on the basis of the old apportionment; and in making the assessment for next year additions or deductions will be made in order to make the final result accord with the new apportionment.

## 4. FINANCES.

The following tables show in brief form the expenditures under the various park loans for the year ending Dec. 1, 1905 :—

## METROPOLITAN PARKS LOAN FUND.

Blue Hills Reservation :—		
Land, . . . . .	\$1,285 25	
Miscellaneous, . . . . .	16,681 31	
	<hr/>	\$17,966 56
Middlesex Fells Reservation :—		
Land, . . . . .	\$5,000 00	
Miscellaneous, . . . . .	31,652 09	
	<hr/>	36,652 09
Revere Beach Reservation :—		
Miscellaneous, . . . . .	\$132,434 71	
	<hr/>	132,434 71



Stony Brook Reservation:—		
Land, . . . . .	\$962 50	
Miscellaneous, . . . . .	131 18	
	<hr/>	\$1,093 68
Beaver Brook Reservation:—		
Miscellaneous, . . . . .	\$1,166 74	
	<hr/>	1,166 74
Hemlock Gorge Reservation:—		
Miscellaneous, . . . . .	\$164 39	
	<hr/>	164 39
Charles River Reservation:—		
Land, . . . . .	\$7,198 73	
Miscellaneous, . . . . .	4,605 36	
	<hr/>	11,804 09
Neponset River Reservation:—		
Land, . . . . .	\$13,469 19	
Miscellaneous, . . . . .	421 94	
	<hr/>	13,891 13
Mystic River Reservation:—		
Land, . . . . .	\$822 39	
Miscellaneous, . . . . .	14,460 69	
	<hr/>	15,283 08
Lynn Shore Reservation:—		
Land, . . . . .	\$4,406 93	
Miscellaneous, . . . . .	94,955 88	
	<hr/>	99,362 81
Quincy Shore Reservation:—		
Miscellaneous, . . . . .	\$18,845 72	
	<hr/>	18,845 72
Winthrop Shore Reservation:—		
Land, . . . . .	\$8,025 84	
Miscellaneous, . . . . .	2,674 51	
	<hr/>	10,700 35
King's Beach Reservation:—		
Miscellaneous, . . . . .	\$70 60	
	<hr/>	70 60
Winthrop Parkway:—		
Land, . . . . .	\$15,196 50	
Miscellaneous, . . . . .	708 33	
	<hr/>	15,904 83
Wellington Bridge:—		
Miscellaneous, . . . . .	\$4,578 59	
	<hr/>	4,578 59
Nahant Bath-house:—		
Miscellaneous, . . . . .	\$67,794 58	
	<hr/>	67,794 58
Boylston Street Bridge:—		
Miscellaneous, . . . . .	\$9,292 58	
	<hr/>	9,292 58
General expense, . . . . .		6,007 02
		<hr/>
		\$463,013 55

## METROPOLITAN PARKS LOAN FUND, SERIES II.

Blue Hills Parkway :—			
Miscellaneous, . . . . .	\$28,873 18		
	<hr/>		\$28,873 18
Middlesex Fells Parkway :—			
Land, . . . . .	\$4,108 75		
Miscellaneous, . . . . .	8,722 58		
	<hr/>		12,831 33
Mystic Valley Parkway :—			
Land, . . . . .	\$1,000 00		
Miscellaneous, . . . . .	24,697 22		
	<hr/>		25,697 22
Revere Beach Parkway :—			
Land, . . . . .	\$1,083 79		
Miscellaneous, . . . . .	62,784 01		
	<hr/>		63,867 80
Neponset River Parkway :—			
Land, . . . . .	\$1,529 00		
Miscellaneous, . . . . .	13,332 16		
	<hr/>		14,861 16
Fresh Pond Parkway :—			
Land, . . . . .	\$1,800 00		
Miscellaneous, . . . . .	5,813 64		
	<hr/>		7,613 64
Furnace Brook Parkway :—			
Land, . . . . .	\$1,720 00		
Miscellaneous, . . . . .	29,766 92		
	<hr/>		31,486 92
Nahant Beach Parkway :—			
Land, . . . . .	\$15,000 00		
Miscellaneous, . . . . .	46,528 77		
	<hr/>		61,528 77
Charles River Speedway :—			
Miscellaneous, . . . . .	\$4,976 69		
	<hr/>		4,976 69
Blue Hills Roads :—			
Miscellaneous, . . . . .	\$713 45		
	<hr/>		713 45
Middlesex Fells Roads :—			
Miscellaneous, . . . . .	\$1,567 21		
	<hr/>		1,567 21
Lynnway :—			
Miscellaneous, . . . . .	\$34,141 17		
	<hr/>		34,141 17
Middlesex Fells and Lynn Woods :—			
Miscellaneous, . . . . .	\$2,576 71		
	<hr/>		2,576 71
Spy Pond Parkway :—			
Miscellaneous, . . . . .	\$2 17		
	<hr/>		2 17
General expense, . . . . .			4,983 32
			<hr/>
			\$295,720 74



The following tables show the total amount expended in each loan, the cost of each reservation and parkway to Dec. 1, 1905, and the amounts charged by the Auditor's department to meet the sinking fund and interest requirements to Jan. 1, 1900:—

## METROPOLITAN PARKS LOAN FUND.

Blue Hills Reservation:—		
Land, . . . . .	\$360,645 04	
Miscellaneous, . . . . .	282,881 50	
	<hr/>	\$643,526 54
Middlesex Fells Reservation:—		
Land, . . . . .	\$690,782 43	
Miscellaneous, . . . . .	252,949 10	
	<hr/>	943,731 53
Revere Beach Reservation:—		
Land, . . . . .	\$1,162,747 67	
Miscellaneous, . . . . .	744,596 88	
	<hr/>	1,907,344 55
Stony Brook Reservation:—		
Land, . . . . .	\$281,243 87	
Miscellaneous, . . . . .	75,701 52	
	<hr/>	356,945 39
Beaver Brook Reservation:—		
Land, . . . . .	\$29,819 29	
Miscellaneous, . . . . .	23,265 33	
	<hr/>	53,084 62
Hemlock Gorge Reservation:—		
Land, . . . . .	\$53,254 00	
Miscellaneous, . . . . .	15,475 44	
	<hr/>	68,729 44
Charles River Reservation:—		
Land, . . . . .	\$1,475,647 55	
Miscellaneous, . . . . .	251,567 95	
	<hr/>	1,727,215 50
Neponset River Reservation:—		
Land, . . . . .	\$220,680 37	
Miscellaneous, . . . . .	46,054 09	
	<hr/>	266,734 46
Mystic River Reservation:—		
Land, . . . . .	\$236,981 87	
Miscellaneous, . . . . .	50,311 20	
	<hr/>	287,293 07
Lynn Shore Reservation:—		
Land, . . . . .	\$231,424 94	
Miscellaneous, . . . . .	142,012 35	
	<hr/>	373,437 29

## Quincy Shore Reservation : —

Land, . . . . .	\$70,984 55
Miscellaneous, . . . . .	53,854 54

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 \$124,839 09

## Winthrop Shore Reservation : —

Land, . . . . .	\$51,067 32
Miscellaneous, . . . . .	165,138 06

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 216,205 38

## Hart's Hill Reservation : —

Land, . . . . .	\$10,000 00
Miscellaneous, . . . . .	103 95

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 10,103 95

## King's Beach Reservation : —

Land, . . . . .	\$23,847 21
Miscellaneous, . . . . .	1,519 28

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 25,366 49

## West Roxbury Parkway : —

Land, . . . . .	\$244,976 01
Miscellaneous, . . . . .	8,313 67

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 253,289 68

## Winthrop Parkway : —

Land, . . . . .	\$15,196 50
Miscellaneous, . . . . .	780 80

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 15,977 30

## Wellington Bridge : —

Miscellaneous, . . . . .	\$184,952 88
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 184,952 88

## Nahant Bath-house : —

Miscellaneous, . . . . .	\$67,794 58
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 67,794 58

## Boylston Street Bridge : —

Miscellaneous, . . . . .	\$9,292 58
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 9,292 58

General expense, . . . . .	147,639 95
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 \$7,683,504 27

Sinking fund requirements to 1896, . . . . .	\$18,980 18
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Care and maintenance to July 1, 1896, . . . . .	85,813 46
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Care and maintenance, July 1, 1896, to Jan.	
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1, 1897, . . . . .	19,604 06
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Sinking fund assessment for 1897, . . . . .	63,630 70
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Sinking fund assessment for 1898, . . . . .	9,755 55
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Sinking fund assessment for 1899, . . . . .	64,224 00
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Interest, . . . . .	28,318 61
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 290,326 56

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 Total charged to Dec. 1, 1905, . . . . . \$7,973,830 83

## METROPOLITAN PARKS LOAN FUND, SERIES II.

Blue Hills Parkway : —		
Land, . . . . .	\$133,492 02	
Miscellaneous, . . . . .	269,316 14	
	<hr/>	\$402,808 16
Middlesex Fells Parkway : —		
Land, . . . . .	\$228,404 39	
Miscellaneous, . . . . .	457,413 59	
	<hr/>	685,817 98
Mystic Valley Parkway : —		
Land, . . . . .	\$202,988 40	
Miscellaneous, . . . . .	239,519 92	
	<hr/>	442,508 32
Revere Beach Parkway : —		
Land, . . . . .	\$536,852 35	
Miscellaneous, . . . . .	831,435 72	
	<hr/>	1,368,288 07
Neponset River Parkway : —		
Land, . . . . .	\$46,531 60	
Miscellaneous, . . . . .	34,289 73	
	<hr/>	80,821 33
Fresh Pond Parkway : —		
Land, . . . . .	\$44,086 25	
Miscellaneous, . . . . .	28,027 58	
	<hr/>	72,113 83
Furnace Brook Parkway : —		
Land, . . . . .	\$137,337 49	
Miscellaneous, . . . . .	46,756 25	
	<hr/>	184,093 74
Nahant Beach Parkway : —		
Land, . . . . .	\$80,940 78	
Miscellaneous, . . . . .	50,577 98	
	<hr/>	131,518 76
Charles River Speedway : —		
Miscellaneous, . . . . .	\$521,317 46	
	<hr/>	521,317 46
Blue Hills Roads : —		
Miscellaneous, . . . . .	\$7,560 16	
	<hr/>	7,560 16
Middlesex Fells Roads : —		
Miscellaneous, . . . . .	\$47,704 53	
	<hr/>	47,704 53
Stony Brook Roads : —		
Miscellaneous, . . . . .	\$37,183 45	
	<hr/>	37,183 45

## Lynnway : —

Land, . . . . .	\$20,500 00	
Miscellaneous, . . . . .	98,513 31	
		<u>\$119,013 31</u>

## Middlesex Fells and Lynn Woods : —

Miscellaneous, . . . . .	\$7,994 36	
		<u>7,994 36</u>

## Spy Pond Parkway : —

Miscellaneous, . . . . .	\$89 04	
		<u>89 04</u>

General expense, . . . . .		92,717 49
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\$4,201,549 99

Sinking fund requirement for 1896, . . . . .	\$3,650 03	
Sinking fund assessment for 1897, . . . . .	14,057 10	
Sinking fund assessment for 1898, . . . . .	3,765 08	
Sinking fund assessment for 1899, . . . . .	15,396 00	
One-half interest, . . . . .	22,327 68	
		<u>59,195 89</u>

Total charged to Dec. 1, 1905, . . . . . \$4,260,745 88

## NANTASKET BEACH LOAN.

Land, . . . . .	\$603,329 57
Miscellaneous, . . . . .	102,551 93

Total charged to Dec. 1, 1905, . . . . . \$705,881 50

The appropriations heretofore made are as follows : —

## METROPOLITAN PARKS LOAN FUND.

Original appropriation, chapter 407, Acts of 1893, . . . . .	\$1,000,000 00
First Revere Beach Act, chapter 483, Acts of 1894, . . . . .	500,000 00
Charles River Act, chapter 509, Acts of 1894, . . . . .	300,000 00
Second Revere Beach Act, chapter 305, Acts of 1895, . . . . .	500,000 00
General appropriation, chapter 466, Acts of 1896, . . . . .	1,000,000 00
General appropriation, chapter 464, Acts of 1897, . . . . .	500,000 00
General appropriation, chapter 530, Acts of 1898, . . . . .	1,000,000 00
Revere Beach Bath-house Act, chapter 142, Acts of 1899, . . . . .	125,000 00
General appropriation, chapter 396, Acts of 1899, . . . . .	300,000 00
Charles River Improvement Act, chapter 465, Acts of 1900, . . . . .	50,000 00
Fuller's Wharf Act, chapter 467, Acts of 1900, . . . . .	30,000 00
General appropriation, chapter 445, Acts of 1901, . . . . .	450,000 00
Mystic River Bridge Act, chapter 492, Acts of 1901, . . . . .	200,000 00
General appropriation, chapter 290, Acts of 1903, . . . . .	125,000 00
Newton Upper Falls Bridge Act, chapter 391, Acts of 1903, . . . . .	40,000 00

Continuing appropriation, chapter 429, Acts of 1903, for 1903, . . . . .	\$300,000 00
For 1904, . . . . .	300,000 00
For 1905, . . . . .	300,000 00
Nahant Beach Bath-house Act, chapter 326, Acts of 1904, . . . . .	70,000 00
	<hr/>
	\$7,090,000 00
To provide for interest and sinking fund requirements to 1900, chapter 311, Acts of 1897, . . . . .	900,000 00
	<hr/>
Total amount of loans, . . . . .	\$7,990,000 00
Amounts received from sales of buildings, receipts from bath-house, fines, etc., . . . . .	198,334 01
	<hr/>
Total, . . . . .	\$8,188,334 01
Total charged to loans, . . . . .	7,973,830 83
	<hr/>
Balance remaining in hands of State Treasurer, . . . . .	\$214,503 18

## METROPOLITAN PARKS LOAN FUND, SERIES II.

Original boulevard, chapter 288, Acts of 1894, . . . . .	\$500,000 00
General appropriation, chapter 472, Acts of 1896, . . . . .	500,000 00
General appropriation, chapter 521, Acts of 1897, . . . . .	1,000,000 00
Saugus Bridge Act, chapter 547, Acts of 1898, . . . . .	100,000 00
General appropriation, chapter 428, Acts of 1899, . . . . .	500,000 00
Mattapan Bridge Act, chapter 443, Acts of 1900, . . . . .	75,000 00
Winchester Act, chapter 444, Acts of 1900, . . . . .	50,000 00
Revere Beach Parkway Act, chapter 445, Acts of 1900, . . . . .	200,000 00
General appropriation, chapter 172, Acts of 1902, . . . . .	450,000 00
General appropriation, chapter 359, Acts of 1903, . . . . .	110,000 00
Continuing appropriation, chapter 419, Acts of 1903, for 1903, . . . . .	300,000 00
For 1904, . . . . .	300,000 00
For 1905, . . . . .	300,000 00
	<hr/>
	\$4,385,000 00
To provide for interest and sinking fund requirements to 1900, chapter 311, Acts of 1897, . . . . .	100,000 00
	<hr/>
Total amount of loans, . . . . .	\$4,485,000 00
Receipts from sales, etc., . . . . .	29,907 41
	<hr/>
Total, . . . . .	\$4,514,907 41
Total of amounts charged to loans, . . . . .	4,260,745 88
	<hr/>
Balance remaining in hands of State Treasurer, . . . . .	\$254,161 53

## NANTASKET BEACH LOAN.

Appropriation, chapter 464, Acts of 1899, . . . . .	\$600,000 00
Appropriation, chapter 456, Acts of 1901, . . . . .	100,000 00
	<hr/>
Total amount of loans, . . . . .	\$700,000 00
Receipts from rents, etc., . . . . .	5,881 50
	<hr/>
Total, . . . . .	\$705,881 50
Total of amounts charged to loans, . . . . .	705,881 50

Respectfully submitted,

JOHN WOODBURY,

*Secretary.*

DEC. 1, 1905.





LYNN SHORE RESERVATION. — Sea wall, promenade and driveway.



## REPORT OF THE LANDSCAPE ARCHITECTS.

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MR. W. B. DE LAS CASAS, *Chairman, Metropolitan Park Commission.*

SIR:— We beg to submit the following report for the year ending Nov. 30, 1905:—

The reservation which has required the greatest attention from this department during the year has again been the Middlesex Fells, on account of the critical state of the forest under the attacks of the gypsy and brown-tail moths. We have completed the general forest plan referred to in previous reports. In the direction of the brush cutting and tree cutting that has been done as a part of the work against the insects, we have used this plan as a guide, being careful to permit no cutting which would hamper the ultimate development of the woods in accordance with the plan, although in scarcely any cases has cutting been done merely for the sake of advancing the sylvan beauty of the reservation when not demanded by immediately pressing conditions. The effect of the plan has been to limit the localities and conditions where tree and brush cutting as a part of the insect fighting has seemed permissible.

During the winter of 1904-05 a considerable amount of tree cutting was done in badly infested sections, where the plan contemplated a relatively open wood; but in the major part of the reservation the plan calls for the close-wood type, and the tree cutting done more recently has included scarcely more than the dead, diseased and suppressed trees and specimens otherwise individually objectionable.

During the last fourteen weeks the principal work done under our direction has been a general removal of worthless and encumbering underbrush, to facilitate further operations against the insects throughout the reservation. None of the

delicate lower ground cover, consisting of plants less than three feet high, has been removed at any point; and even the larger woodland shrubs have been generally preserved, together with all the young seedling trees, the "brush" consisting almost altogether of small and generally worthless sprouts from old tree stumps.

In the same reservation we have given further study to the perplexing question of how to locate the electric car line which is expected to follow the town road through the reservation from Fellsway West to Stoneham.

Along the Charles River plans have been made for the uncompleted links in the chain of drives extending from Watertown to Cambridge, where they will connect with the partly completed chain extending to the new Cambridge Bridge on the Basin.

We have been engaged with the Engineer and the Consulting Architect on the design of a number of important bridges required at various points. The practice in this matter has been to have preliminary studies prepared by us for the types of bridges appropriate to the several situations, to have these revised after repeated joint consultations between us and the Engineer and the Consulting Architect, and then to have the working drawings and specifications prepared by the Engineer.

The details of these and many other matters with which we have been concerned during the year are fully discussed in the reports of the departments of Engineering and Superintendence, with which we have been in consultation, and need not be further discussed by us here. The accompanying table gives a summary of the plans and reports prepared during the year.

Respectfully submitted,

OLMSTED BROTHERS.

*Summary of Reports and Plans (exclusive of Sun Prints) prepared by the Landscape Architects during the Year ending Nov. 30, 1905.*

	Topographical Maps.	Studies.	Preliminary and General.	Grading and Con- struction Plans.	Planting and For- estry Plans.	Reports.	Totals.
<i>Parkways.</i>							
Blue Hills, . . . . .	-	-	-	-	-	1	1
Fells Parkway, . . . . .	1	3	2	-	1	3	10
Revere Beach, . . . . .	-	-	-	-	2	1	3
Mystic Valley, . . . . .	-	-	-	-	6	3	9
Fresh Pond, . . . . .	-	-	-	2	1	4	7
Furnace Brook, . . . . .	-	-	-	2	1	3	6
Nahant Beach, . . . . .	-	2	1	-	2	1	6
Winchester — Woburn, . . . . .	1	1	1	-	-	1	4
<i>Reservations</i>							
Blue Hills, . . . . .	4	1	2	-	-	6	13
Fells Reservation, . . . . .	2	10	3	2	11	10	38
Stony Brook, . . . . .	-	-	-	-	-	1	1
Beaver Brook, . . . . .	-	1	-	-	5	6	12
Hemlock Gorge, . . . . .	-	-	-	3	-	1	4
Charles River, . . . . .	1	15	10	-	-	6	32
Mystic River, . . . . .	-	1	3	4	-	3	11
Lynn Shore, . . . . .	-	1	1	-	-	-	2
Revere Beach, . . . . .	-	-	-	-	-	1	1
Quincy Shore, . . . . .	1	12	9	1	-	2	25
Nantasket Beach, . . . . .	-	1	-	-	1	-	2
Totals, . . . . .	10	48	32	14	30	53	187



## REPORT OF THE ENGINEER.

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Hon. WILLIAM B. DE LAS CASAS, *Chairman, Metropolitan Park Commission.*

SIR:— I beg to submit the following report of the work of the Engineering Department for the year ending Dec. 1, 1905.

The number of employees of the department, which was 46 at the beginning of the year, was increased during the summer months to 54, and later reduced to the present force, which is 45. The present organization, in accordance with the ratings of the Civil Service Commission, is identical with that at the end of last year, less 1 inspector, and is as follows: 5 assistant engineers, 2 draftsmen, 8 instrument men in charge of parties, 23 rodmen, 5 inspectors, 1 clerk and 1 stenographer.

The construction work, under the supervision of Division Engineer C. Barton Pratt, has been during the past year principally grading, filling, surfacing, paving, drainage, river and shore work; also, there has been considerable stone, concrete and reinforced concrete masonry work in sea walls and bridges, and some steel bridge work.

The preliminary work, including surveys for construction plans, surveys and plans for takings, topographical surveys and maps, has been under the supervision of Division Engineer David A. Ambrose; and the general office work and preparation of plans under the supervision of Louis V. Foster.

Seventy-two permits and licenses have been issued by the Commission to cities, towns, corporations and individuals, for the work of construction of electric railways, electric light, telephone and telegraph lines, drains, sewers, water and gas pipes; and the general inspection of said work has been performed by this department, at a total cost of \$721.22.

During the past year records of the progress of the various pieces of construction work have been kept by means of photographs taken by this department.

The total cost of conducting the department has been as follows : —

Services, . . . . .	\$44,632 51
Equipment, . . . . .	730 06
Operating expenses, . . . . .	2,658 69
Total, . . . . .	<u>\$48,021 26</u>

The cost of construction work, done under the supervision of this department, has amounted to \$464,470.23, exclusive of the cost of engineering and inspection ; and all engineering and inspection incidental to the same, omitting travelling and other incidental expenses, has averaged 5.4 per cent.

An appraisal of the property in charge of the department, omitting the value of maps, plans, notes and records, is as follows : —

Equipment : —	
Offices, . . . . .	\$2,354 80
Surveying and drawing instruments, . . . . .	3,150 27
Miscellaneous, . . . . .	48 15
	<u>\$5,553 22</u>
Supplies : —	
General, . . . . .	1,574 81
Total, . . . . .	<u>\$7,128 03</u>

Details are given in the following sections of parkway and reservation, and in the tables appended.

#### PARKWAYS.

*Blue Hills Parkway.* — The road from Canton Avenue to Hillside Street in Blue Hills Reservation has been completed by the construction of the portion from Canton Avenue to Harland Street, and the grassed circle at the junction of the parkway and Canton Avenue has been removed and replaced by macadam, making the driveway of Canton Avenue crossing direct. The above work has been done by the reservation forces, and the engineering services have been furnished by this department.

*Fresh Pond Parkway.* — An ornamental fence has been constructed, of granite, brick and limestone, around Lowell Memorial Park, the work being done in accordance with the design and under the supervision of the Architect. Grading, made necessary by the construction of this wall, has been done by the reservation forces; engineering services for the construction of the wall and for the grading have been furnished by this department.

*Furnace Brook Parkway.* — The work of building to sub-grade the parkway from Adams Street to Blue Hills Reservation, and building a reinforced concrete and stone masonry culvert bridge, under contract with Rowe & Perini, which was begun on Sept. 26, 1904, was completed Dec. 31, 1904. The total estimated cost of this work has been as follows: —

Previously reported: —	
Construction and incidentals, contract No. 81,	\$1,221 40
Engineering and inspection, . . . . .	378 00
	\$4,599 40
Year ending Dec. 1, 1905: —	
Construction, contract No. 81, . . . . .	\$12,254 79
Incidentals, . . . . .	395 64
Engineering and inspection, . . . . .	928 48
	13,578 91
Total, . . . . .	\$18,178 31

Construction plans and specifications have been prepared for a reinforced concrete and stone masonry bridge for the Granite Branch of the New York, New Haven & Hartford Railroad over Furnace Brook Parkway at West Quincy. The design is for an elliptical arch of 56-foot span and 31 feet in width. It is to be built of Portland cement concrete, reinforced by the "Johnson" corrugated bars, the facings of the arch and the spandrel and wing walls to be of quarry-faced granite ashler. The following bids were received on Aug. 21, 1905: —

Globe Construction Company, Boston, . . . . .	\$20,662 90
Patrick McGovern, Boston, . . . . .	20,612 75
D. F. O'Connell Company, Boston, . . . . .	20,267 25
John Cashman, Quincy, . . . . .	19,860 50

The contract was awarded to John Cashman. Before beginning this work it was necessary to construct a temporary embankment and pile bridge outside the line of the work, to provide for the operation of trains. Under an agreement with the railroad company, they were to construct the temporary embankments and pile bridge and the permanent approaches to the new masonry arch bridge, and to do the refilling and relay the permanent track over the new bridge when it is completed, the cost of said work to be paid by the Commonwealth. The following bids were received by the railroad company on Aug. 28, 1905, for building the pile bridge: —

Lawler Brothers, Charlestown, . . . . .	\$7,735 00
T. E. Ruggles, Boston, . . . . .	7,145 00
Wm. L. Miller, Boston, . . . . .	6,783 00
Cavanagh Brothers, Boston, . . . . .	6,335 00
John Cashman, Quincy, . . . . .	6,230 00

With the approval of this Commission the contract was awarded to John Cashman, and the work was begun on Sept. 7, 1905, and completed on Oct. 3, 1905. The work of constructing the new masonry arch bridge was begun on Oct. 3, 1905, and is now in progress. The main part of the bridge is practically completed excepting the easterly spandrel and wing walls, and it is expected to have the track laid in its permanent location over the new bridge on or before Dec. 31, 1905. On account of winter weather conditions it will probably be necessary to postpone until spring the construction of retaining walls for slopes, culvert and other incidental work. The estimated cost of the work, to Dec. 1, 1905, has been as follows: —

Construction, contract No. 91, . . . . .	\$14,706 25
Incidentals, . . . . .	368 21
Engineering and inspection, . . . . .	865 60
Total, . . . . .	<u>\$15,940 06</u>

Construction plans are being prepared for reinforced concrete masonry bridge for the main line of the New York, New Haven & Hartford Railroad over Furnace Brook Parkway, near Newport Avenue, Quincy.



*Lynn Fells Parkway.* — Surveys and plans for takings, from Middlesex Fells Reservation to Elm Street, Melrose, have been made. Topographical surveys have been made of the portion from Elm Street, Melrose, to Lynn Woods, an area of about 265 acres.

*Lynnway.* — The work of constructing pile bridge and concrete masonry draw piers at Saugus River, under contract with the Metropolitan Contracting Company, which was begun on May 31, 1904, was completed on May 13, 1905. The total cost of this work has been as follows:—

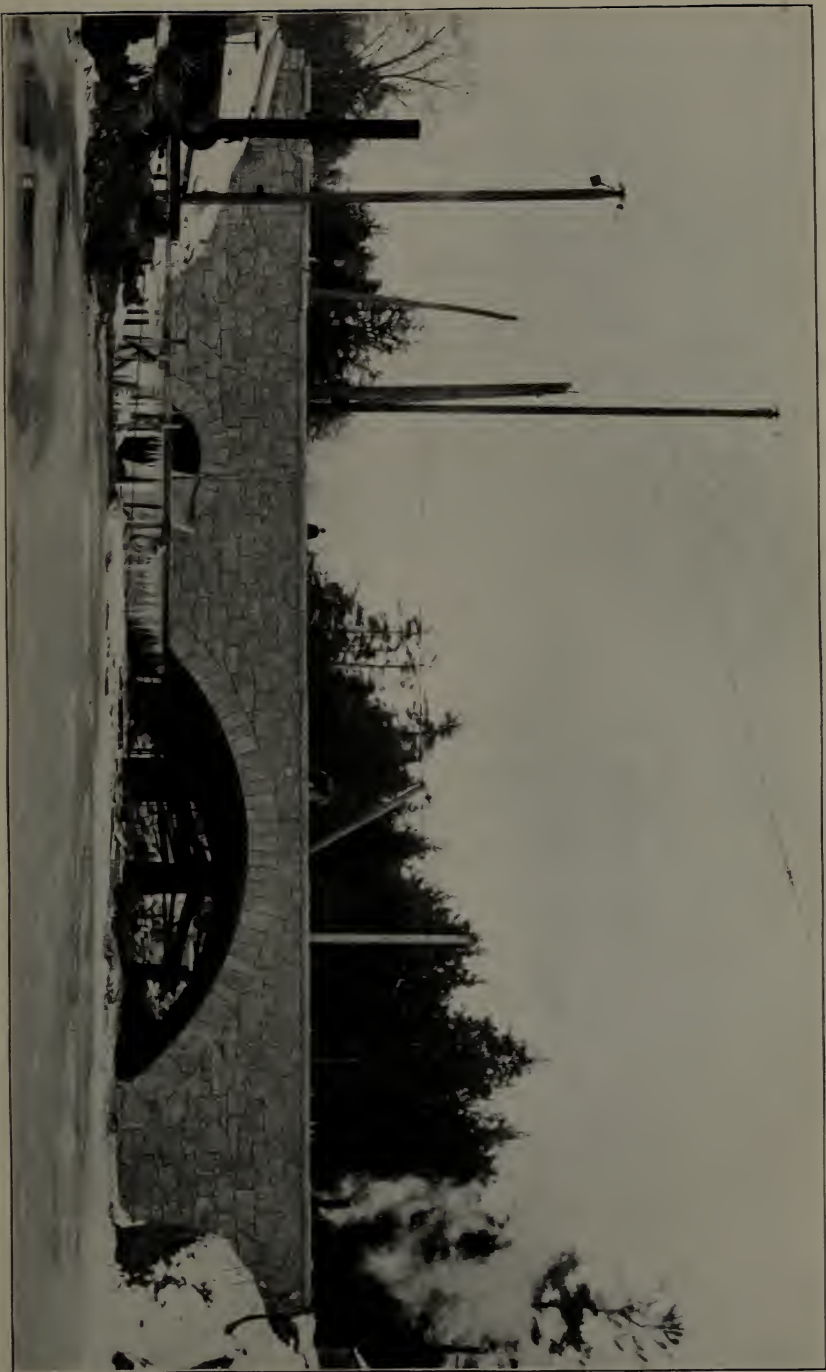
Previously reported:—		
Construction and incidentals, contract No. 70,	\$37,863 95	
Engineering and inspection, . . . . .	1,510 60	
	<hr/>	\$39,374 55
Year ending Dec. 1, 1905:—		
Construction, contract No. 70, . . . . .	\$11,260 08	
Incidentals, . . . . .	872 45	
Engineering and inspection, . . . . .	1,005 79	
	<hr/>	13,138 32
Total, . . . . .		<hr/> \$52,512 87

The work of erecting the steel Scherzer rolling lift bridge for the draw, under contract with the American Bridge Company, was begun on Jan. 20, 1905, and was completed on Aug. 5, 1905. The total cost of this work, to Dec. 1, 1905, has been as follows:—

Previously reported:—		
Construction and incidentals, contract No. 74,	\$1,043 85	
Engineering and inspection, . . . . .	37 90	
	<hr/>	\$1,081 75
Year ending Dec. 1, 1905:—		
Construction, contract No. 74, . . . . .	\$15,295 50	
Incidentals, . . . . .	607 85	
Engineering and inspection, . . . . .	574 10	
	<hr/>	16,477 45
Total, . . . . .		<hr/> \$17,559 20

A proposition made by the Olds Gasoline Engine Company, for the furnishing and installation of gasoline engines and the necessary machinery to operate this bridge, has been accepted. As it is proposed to not open the bridge to public travel until next spring, on account of the incompleteness





HEMLOCK GORGE RESERVATION. — Boylston Street Bridge, from north side.



of the approaches, it was deemed advisable to not install the engines and machinery until that time, and they have been delivered at the headquarters of Revere Beach Reservation and placed in storage. The cost to Dec. 1, 1905, has been, including engineering and inspection, \$713.33.

The work of paving the roadway of the Saugus River Bridge with wooden blocks, furnished by the Commission under a contract with the United States Wood Preserving Company, has been completed by E. W. Everson & Co. as a part of the work under their contract for building Revere Beach Reservation and surfacing Lynnway. The work of surfacing Lynnway has been begun, but has been discontinued on account of winter weather, and will probably be completed early next spring. The estimated cost of this work, to Dec. 1, 1905, has been as follows:—

Construction, contract No. 83, . . . . .	\$3,276 62
Wooden block pavement, . . . . .	5,748 75
Incidentals, . . . . .	168 28
Engineering and inspection, . . . . .	562 55
Total, . . . . .	<u>\$9,756 20</u>

*Middlesex Fells Parkway.*—The work of finishing the approaches to the Wellington Bridge and Middlesex Avenue from the bridge to Revere Beach Parkway, under contract with Coleman Brothers, was completed Nov. 19, 1904. The total cost of this work has been as follows:—

Previously reported:—

Construction and incidentals, contract No. 78, . . . . .	\$12,358 82
Engineering and inspection, . . . . .	524 30
	<u>\$12,883 12</u>

Year ending Dec. 1, 1905:—

Construction, contract No. 78, . . . . .	\$5,518 89
Incidentals, . . . . .	608 64
Engineering and inspection, . . . . .	303 20
	<u>6,430 73</u>
Total, . . . . .	<u>\$19,313 85</u>

The work of building drawtender's house for Wellington Bridge, which was being done under an agreement with Lorenzo Hoyt, has been completed; and the total cost of

the entire work, including cost of foundation for house, which was built by the Metropolitan Contracting Company, and including also engineering and inspection, has been \$1,283.31.

Topographical surveys have been made along Forest Street from the present ending of the Parkway to Elm Street, covering an area of about 12 acres. Also, surveys have been made for takings for the extension of the Parkway to Elm Street.

*Mystic Valley Parkway.* — Construction plans and specifications have been prepared for building to sub-grade roadways along the Mystic River from High Street to Main Street, Medford, in the Mystic River Reservation. Bids for this work are given under the Mystic River Reservation section. The contract for the whole work was awarded to Coleman Brothers, the lowest bidders, and the work is practically completed from High Street to Jerome Street, which is the limit of the parkway section. The total estimated cost of this section, to Dec. 1, 1905, has been as follows:—

Construction, contract No. 85, . . . . .	\$26,432 05
Incidentals, . . . . .	116 31
Engineering and inspection, . . . . .	1,406 22
	<hr/>
Total, . . . . .	\$27,954 58

Studies and construction plans for bridges for this section of the river are being prepared by this department.

*Nahant Beach Parkway.* — Construction plans and specifications for grading and building roads near the new bath-house have been prepared, and the following bids were received on April 18, 1905:—

M. McDonough, Swampscott, . . . . .	\$31,911 60
T. Stuart & Son Company, Newton, . . . . .	30,893 50
Coleman Brothers, Everett, . . . . .	29,093 75

The contract was awarded to Coleman Brothers, the work begun on April 24, 1905, and completed on Sept. 30, 1905. The total estimated cost, including work in addition to the amount in the original contract, has been as follows:—

Construction, contract No. 89, . . . . .	§41,539 23
Incidentals, . . . . .	840 06
Engineering and inspection, . . . . .	1,892 50
Total, . . . . .	<u>§44,271 79</u>

Engineering services and supervision have been furnished by this department for the work of construction of an electric railway, by the Nahant & Lynn Street Railway Company, through the parkway from Washington Street, Lynn, to Castle Road, Nahant. The work of constructing the railway was begun April 19, 1905, and it was opened for public travel on July 20, 1905.

It was provided in the grant of location to the railway company that the wires and cables of the Lynn Gas and Electric Company, New England Telephone and Telegraph Company and Western Union Telegraph Company should be combined with the railway company's wires on one line of poles located between the track, and by so doing have only one line of poles, in place of four separate lines. This work of moving the wires to the new line of poles and removing the old poles is nearly complete, and the appearance of this section very much improved.

*Neponset River Parkway.*—The work of construction of the westerly roadway and street railway reservation from Brush Hill Road to Blue Hill Avenue, under contract with T. H. Gill & Co., has been completed. The total estimated cost of this work has been as follows:—

Previously reported:—	
Construction and incidentals, contract No. 80,	§10,483 60
Engineering and inspection, . . . . .	363 80
	<u>§10,847 40</u>
Year ending Dec. 1, 1905:—	
Construction, contract No. 80, . . . . .	§9,517 29
Incidentals, . . . . .	465 90
Engineering and inspection, . . . . .	674 20
	<u>10,657 39</u>
Total, . . . . .	<u>§21,504 79</u>

A double-track street railway has been built by the Blue Hills Street Railway Company on location granted by this Commission, from Blue Hill Avenue to Brush Hill Road,



and across the Neponset River Reservation on pile trestle and embankment to Milton Street. This line has been in operation since May 1, 1905.

*Revere Beach Parkway.* — The work of constructing pile bridge and concrete masonry draw piers at Malden River, under contract with the Metropolitan Contracting Company, which was begun on June 28, 1904, was completed on April 12, 1905. The total estimated cost of the work under this contract has been as follows : —

Previously reported : —		
Construction and incidentals, contract No. 71,	\$15,938 20	
Engineering and inspection, . . . . .	774 20	
	<hr/>	\$16,712 40
Year ending Dec. 1, 1905 : —		
Construction, contract No. 71, . . . . .	\$10,775 80	
Incidentals, . . . . .	794 47	
Engineering and inspection, . . . . .	816 80	
	<hr/>	12,387 07
Total, . . . . .		<hr/> \$29,099 47

The work of erecting the steel Scherzer rolling lift bridge for the draw, under contract with the American Bridge Company, was begun on Jan. 14, 1905, and was completed May 15, 1905. The total estimated cost of the work under this contract, to Dec. 1, 1905, has been as follows : —

Previously reported : —		
Construction and incidentals, contract No. 74,	\$1,043 79	
Engineering and inspection, . . . . .	30 00	
	<hr/>	\$1,073 79
Year ending Dec. 1, 1905 : —		
Construction, contract No. 74, . . . . .	\$16,191 90	
Incidentals, . . . . .	682 49	
Engineering and inspection, . . . . .	517 14	
	<hr/>	17,391 53
Total, . . . . .		<hr/> \$18,465 32

The proposition made by the Olds Gasoline Engine Company, to furnish and install gasoline engines and the necessary machinery to operate this bridge, has been accepted; the work of installation was completed on Aug. 14, 1905, and the bridge has since been operated by this machinery,

and it has proved very satisfactory and much more economical in this location than electricity, the usual method of operating these bridges. The total cost of the engines, machinery and pump installed has been \$918.87, including engineering and inspection.

Construction plans and specifications for surfacing and other work incidental to the completion of the parkway from Main Street, Everett, to Fellsway, Medford, have been prepared. On April 3, 1905, the following bids were received for this work:—

James Driscoll & Son, Brookline, . . . . .	\$24,382 00
T. Stuart & Son Company, Newton, . . . . .	20,353 00
The H. Gore Company, Boston, . . . . .	20,178 50
Coleman Brothers, Everett, . . . . .	19,692 00
James Doherty, Boston, . . . . .	18,258 10
T. H. Gill & Co., Boston, . . . . .	17,407 00

The contract was awarded to T. H. Gill & Co., the work was begun on April 10, 1905, and completed on July 31, 1905.

The amount of work done under some of the items of this contract was greater than that of the preliminary estimate, and the total estimated cost, according to vouchers in this office, has been as follows:—

Construction, contract No. 86, . . . . .	\$23,213 32
Wooden block pavement, . . . . .	3,070 00
Loam and manure, . . . . .	2,896 00
Lumber for fence, . . . . .	1,833 28
Incidentals, . . . . .	848 58
Engineering and inspection, . . . . .	1,274 10
Total, . . . . .	<u>\$33,135 28</u>

The Welsbach system of lighting has been installed on this section of parkway, 29 single lamps being used, at about 200 feet average spacing.

*Winthrop Parkway.*—Surveys and plans have been made for conveyances and takings of the land in the portion of the parkway between Eliot Circle and Leverett Avenue, Revere.

## RESERVATIONS.

*Blue Hills Reservation.*—Engineering services have been furnished for the construction of a road from the end of Furnace Brook Parkway at the reservation line to Administration Road, a distance of about 1 mile. The work of construction is being done by the reservation forces, and is now in progress.

*Charles River Reservation.*—The work of construction of a concrete-steel gravity dam, of the Ambursen type, in the Charles River at Newton Lower Falls, which was begun Aug. 24, 1904, was completed Nov. 16, 1904. The total estimated cost of this work, a portion of which was paid by the R. T. Sullivan Company, who hold water rights at this point, has been as follows:—

Previously reported:—		
Construction and incidentals, contract No. 82,	\$3,760 99	
Engineering and inspection, . . . . .	374 60	
	<hr/>	\$4,135 59
Year ending Dec. 1, 1905:—		
Construction, contract No. 82, . . . . .	\$3,595 55	
Incidentals, . . . . .	2 40	
Engineering and inspection, . . . . .	99 20	
	<hr/>	3,697 15
Total, . . . . .		<hr/> \$7,832 74

Engineering services and supervision have been furnished for the construction of a walk along the westerly side of the Charles River from Cambridge Hospital to Arsenal Street, Cambridge. An opportunity was offered to obtain from the Hood Rubber Company, from grading on their property at Watertown, at an advantageous price, a portion of the filling material necessary for this work. Only about one-half of the material estimated to be furnished by them has been delivered to date.

On account of the rapid construction of Everett Street extension during the month of May, 1904, to allow its use during the summer months, no time was allowed for the settlement of the heavy fill of the portion nearest the Soldiers' Field Road, and consequently settlement has occurred since

it was completed. In April, 1905, this portion was resurfaced and brought up to the established grade, the work being done by Coleman Brothers, the contractors for the original construction; and the total cost, according to vouchers in this office, has been \$930.13, including engineering and inspection.

Construction plans and specifications have been prepared for a concrete and stone masonry dam and a reinforced concrete and stone masonry bridge over the Charles River at Boylston Street, Newton Upper Falls. The bridge consists of one 50-foot span arch and one 14-foot span arch, and is 70 feet wide between parapet walls. This provides for two 8-foot sidewalks and a roadway 54 feet wide, with the two tracks of the Boston & Worcester Street Railway Company located in the centre. The abutments, piers and 14-foot arch are constructed of plain Portland cement concrete, and the 50-foot arch of reinforced concrete. The entire faces of the bridge, including the arch rings, spandrel, wing and parapet walls, are constructed of quarry-split granite rubble masonry, this class of work being used to give a rustic appearance, to correspond to the surroundings. On Aug. 7, 1905, bids were received from the following:—

Atlas Reinforced Concrete Construction Company, Boston, . . . . .	\$34,947 50
Jones & Meehan, Boston, . . . . .	32,266 00
T. H. Gill & Co., Boston, . . . . .	31,154 25
Globe Construction Company, Boston, . . . . .	30,683 08
Patrick McGovern, Boston, . . . . .	29,700 50
Woodbury & Leighton Company, Boston, . . . . .	25,901 25
M. McDonough, Swampscott, . . . . .	25,464 00
T. E. Ruggles, Boston, . . . . .	22,879 60

The lowest bidder, T. E. Ruggles, requested that his bid be not considered, as after making it he discovered that he had not fully informed himself regarding the conditions existing on this work, and had not consulted this department, and, after obtaining full information, thought that he would be unable to properly do the work. His request was granted by the Commission, and the contract was awarded to the next lowest bidder, M. McDonough. The work was



begun on Aug. 21, 1905; the northerly half of the bridge was completed on Nov. 5, 1905, and the public travel turned from the old bridge on to it on this date. The street railway traffic was turned over on to the completed portion of the new bridge on Nov. 14, 1905. The work of tearing out the old timber bridge and constructing the southerly half of the new bridge was immediately begun; and such progress has been made that it now seems probable that the entire masonry work will be completed by Jan. 1, 1906, if the weather conditions remain favorable. The estimated cost of this work, to Dec. 1, 1905, according to vouchers in this office, has been as follows:—

Construction, contract No. 92, . . . . .	\$17,929 32
Incidentals, . . . . .	790 98
Engineering and inspection, . . . . .	1,539 12
Total, . . . . .	<u>\$20,259 42</u>

*Lynn Shore Reservation.*—The work of construction of sea wall from Red Rock, Lynn, to Monument Square, Swampscott, a total length of about 4,150 feet, and sub-grading of the reservation, under contract with Coleman Brothers, has been completed; and it was decided by the Commission to extend the wall westerly around the Red Rock property, a distance of 632 feet. Construction plans were prepared and arrangements were made to do the work under an extension of the original contract, No. 76, with Coleman Brothers. The whole work under this contract, including extensions, was completed Aug. 31, 1905. The total estimated cost has been as follows:—

Previously reported:—

Construction and incidentals, contract No. 76, . . . . .	\$43,410 82
Engineering and inspection, . . . . .	2,289 32
	<u>\$45,700 14</u>

Year ending Dec. 1, 1905:—

Construction, contract No. 76, . . . . .	\$47,396 68
Concrete piles, . . . . .	2,581 00
Incidentals, . . . . .	2,860 04
Engineering and inspection, . . . . .	3,164 14
	<u>56,001 86</u>
Total, . . . . .	\$101,702 00



HEMLOCK GORGE RESERVATION. — Boylston Street Bridge, showing method of construction.





The work of building iron pipe rail fence on the sea wall its entire length, the contract for which was awarded to A. B. Robbins in October, 1904, was completed Sept. 30, 1905. The portion on the extension of the wall around Red Rock was galvanized, to protect it from rust. The total cost of this work has been as follows:—

Construction, contract No. 84, . . . . .	\$6,156 87
Incidentals, . . . . .	68 33
Engineering and inspection, . . . . .	167 88
	<hr/>
Total, . . . . .	\$6,393 08

Construction plans and specifications have been prepared for surfacing and other work necessary to complete the drive, promenade, etc., from Prescott Place, Lynn, to the northerly end of King's Beach Reservation in Swampscott. The lay-out of this work gives a granolithic promenade 15 feet wide along the top of the sea wall, a grassed slope of widths varying from 6 feet to 37 feet, a macadam roadway 40 feet wide, including a 3-foot concrete gutter, a planting space 6 feet wide and a gravel sidewalk 9 feet wide running along the land abutting the reservation. Bids were received for this work on April 17, 1905, from the following:—

Frank Williams & Co., Boston, . . . . .	\$43,446 60
Frederick D. Mayo, Lynn, . . . . .	30,426 00
Daniel E. Lynch, Dorchester, . . . . .	23,655 00
Falvey & Kelley, Dorchester, . . . . .	22,807 50
David J. Sheehan & Co., Lynn, . . . . .	22,672 20
M. McDonough, Swampscott, . . . . .	21,865 00
Coleman Brothers, Everett, . . . . .	21,207 75
The H. Gore Company, Boston, . . . . .	20,119 90
James Doherty, Boston, . . . . .	19,571 25

The contract was awarded to James Doherty, and the work was begun April 24, 1905, and was completed Sept. 15, 1905. Standpipes for watering carts and Welsbach lights have been installed, 20 lamp posts of special design, with 2 lamps on each post, being required. The total estimated cost of this work has been as follows:—

Construction, contract No. 87, . . . . .	\$22,594 82
Incidentals, . . . . .	1,150 86
Engineering and inspection, . . . . .	2,143 07
	<hr/>
Total, . . . . .	\$25,888 75

Surveys, plans and estimates have been made for the extension of the reservation from the end of the completed work near Prescott Place to Nahant Street.

*Middlesex Fells Reservation.* — Engineering services have been furnished for the construction of the Brooks Road. The work has been done by the reservation forces, and was completed Oct. 31, 1905.

Services were also furnished for the construction, by the reservation forces, of the north border road from Main Street to Bear Hill Entrance, and the work is now in progress.

Preliminary surveys have been made for road from Forest Street, at the end of Brooks Road, to Half-mile Road. Also, a topographical survey and plan of this section, an area of about 8.5 acres, have been made.

*Mystic River Reservation.* — The construction plans and specifications for building to sub-grade roads along the Mystic River from High Street, at Mystic Valley Parkway, to Main Street, Medford, have been completed; and on Dec. 27, 1904, bids were received from the following: —

Ruggles & Perkins, Boston, . . . . .	\$53,595 00
Gow & Palmer, Boston, . . . . .	51,190 00
Frank Williams, Boston, . . . . .	42,662 50
Rowe & Perini, South Framingham, . . . . .	39,062 50
T. H. Gill & Co., Boston, . . . . .	35,230 00
Coleman Brothers, Everett, . . . . .	33,530 00

The contract was awarded to Coleman Brothers, preparations were made by them during the winter for doing the work, and the actual work was begun on April 3, 1905, and is now in progress.

It was provided in the specifications for this work that the filling material required for the work should be excavated or dredged from the river; and, as far as was necessary to obtain the required amount of material, the work should be



done in accordance with the lines and grades for the widening, deepening and straightening of the channel recommended by Mr. John R. Freeman in his report on the feasibility of constructing a dam at Cradock Bridge. By this arrangement two results would be obtained by the amount of work usually required for either one alone. The estimated cost of the portion of the work from Jerome Street to Main Street, to Dec. 1, 1905, has been as follows:—

Construction, contract No. 85, . . . . .	\$13,361 80
Incidentals, . . . . .	466 56
Engineering and inspection, . . . . .	1,701 31
	<hr/>
Total, . . . . .	\$15,529 67

Studies for designs of bridges for this section of the river are being prepared.

*Nantasket Beach Reservation.*—Engineering services and supervision have been furnished for building bulkhead at southerly end of the reservation, and for grading along County Road between the easterly line of the road and the buildings. The work has been done by the reservation forces, and the amount laid out to be done this year was completed Nov. 15, 1905.

*Quincy Shore Reservation.*—The work of building to sub-grade the portion of the reservation from Atlantic Street to Squantum Street, under contract with Coleman Brothers, was completed Nov. 30, 1904, and the total estimated cost has been as follows:—

Previously reported:—

Construction and incidentals, contract No. 66, . . . . .	\$30,587 41	
Engineering and inspection, . . . . .	804 01	
	<hr/>	\$31,391 42
Year ending Dec. 1, 1905:—		
Construction, contract No. 66, . . . . .	\$7,888 06	
Incidentals, . . . . .	6 10	
Engineering and inspection, . . . . .	59 40	
	<hr/>	7,953 56
		<hr/>
Total, . . . . .		\$39,344 98



Construction plans and specifications have been prepared for building to sub-grade the portion of the reservation from Squantum Street to the National Sailors' Home, a distance of about  $1\frac{1}{2}$  miles, and for regrading the section from Atlantic Street to Squantum Street, which, during the interval of eight months between the two contracts, had settled considerably in places. Bids were received for this work on Aug. 21, 1905, from the following:—

T. E. Ruggles, Boston, . . . . .	\$220,200 00
Globe Construction Company, Boston, . . . . .	139,525 00
Jones & Meehan, Boston, . . . . .	137,700 00
Eastern Dredging Company, Boston, . . . . .	120,100 00
Coleman Brothers, Boston, . . . . .	104,900 00
William H. Ellis, Boston, . . . . .	102,875 00
T. H. Gill & Co., Boston, . . . . .	91,875 00
Rowe & Perini, South Framingham, . . . . .	78,375 00
Newell & Snowling Construction Company, Ux- bridge, . . . . .	65,700 00

The contract was awarded to Newell & Snowling Construction Company, the work was begun Sept. 5, 1905, and is now in progress. The estimated cost, to Dec. 1, 1905, has been as follows:—

Construction, contract No. 93, . . . . .	\$7,731 68
Incidentals, . . . . .	245 73
Engineering and inspection, . . . . .	880 34
Total, . . . . .	<u>\$8,857 75</u>

Construction plans and specifications have been prepared for building a reinforced concrete masonry bridge over Sachem Brook, and for a reinforced concrete culvert near the southerly end of the work.

*Revere Beach Reservation.*—The work of constructing, of concrete, terraces and shelter foundations opposite Revere Street and Oak Island Street, under contract with Patrick McGovern, was completed June 30, 1905. The total estimated cost of this work has been as follows:—

Previously reported:—

Construction and incidentals, contract No. 77,	\$17,462 42	
Engineering and inspection, . . . . .	679 35	
	<hr/>	\$18,141 77

Year ending Dec. 1, 1905:—

Construction, contract No. 77, . . . . .	\$17,474 88	
Incidentals, . . . . .	835 18	
Engineering and inspection, . . . . .	659 40	
	<hr/>	18,969 46
Total, . . . . .		<hr/> <hr/> \$37,111 23

The shelters have been erected on the above foundations, under the direction of the Architect.

A section of the granolithic walk just north of the bath-house was badly damaged by fire in the property abutting it, and it was necessary to remove the damaged portion and lay a new walk. About 466 square yards were laid to repair this damage, and the total cost was \$545.90, including engineering and inspection.

Construction plans and specifications have been prepared for building, of concrete, tiers of seats or "bleachers" on the beach along the front of the terraces and shelters at the bath-house. This location has been much used by the public, on account of the shade from the structures behind; but, on account of its rough and stony condition, was both uncomfortable for the people to sit upon and was very difficult to keep clean on account of fragments of food, rubbish and paper getting in among the stones. The above-mentioned work provides for covering this area, which is about 500 feet long by 25 feet wide, with concrete, built in the form of steps 2 feet 6 inches wide by 6 inches high, with a smooth granolithic finished surface. This furnishes comfortable seating accommodations for about 1,500 people, and is easily cleaned each morning by sweeping, or flushing with water from a hose. On May 11, 1905, bids for the above-described work were received from the following:—

Carr & Andrews Corporation, Boston, . . . . .	\$5,215 00
Murdock Corporation, Boston, . . . . .	4,994 00
Warren Brothers Company, Boston, . . . . .	4,673 00
Patrick McGovern, Boston, . . . . .	4,650 00

The contract was awarded to Patrick McGovern, the work was begun on April 20, 1905, and was completed July 1, 1905. The total estimated cost of this work has been as follows:—

Construction, contract No. 90, . . . . .	\$5,050 45
Incidentals, . . . . .	10 15
Engineering and inspection, . . . . .	206 40
	<hr/>
Total, . . . . .	\$5,267 00

The work of grading, surfacing and other work necessary to build complete the portion of the reservation from Revere Street to Northern Circle, near the Point of Pines, under contract with E. W. Everson & Co., has progressed very slowly, and is not yet completed. It will probably require two or three months of next spring to complete the work. The estimated cost of the work, to Dec. 1, 1905, has been as follows:—

Construction, contract No. 83, . . . . .	\$90,809 19
Incidentals, . . . . .	1,591 12
Engineering and inspection, . . . . .	3,629 25
	<hr/>
Total, . . . . .	\$96,029 56

Surveys and plans have been made of the land between the taking line and the westerly line of construction, from Revere Street to Point of Pines, for conveyance to abutting owners.

#### GENERAL.

The bridges under the care and control of this Commission have been inspected by this department three times during the year, — November, 1904, May, 1905, and November, 1905, — and reports made to the Secretary of their condition.

Topographical surveys and maps have been made of a total area of 288 acres. Thirty-eight plans for record and 89 duplicate copies of record plans have been made during the year.

The following tables are appended to this report : —

- TABLE 1. Lengths of parkways.
- TABLE 2. Summary of plan work.
- TABLE 3. Summary of vouchers.
- TABLE 4. Summary of cost of engineering.
- TABLE 5. Prices for items of construction.

Respectfully submitted,

JOHN R. RABLIN,

*Engineer.*

DEC. 1, 1905.

TABLE 1. — *Length of Parkways, corrected to Dec. 1, 1905.*

DESCRIPTION.	Constructed (Miles).	Under Construction (Miles).	Remainder (Miles).	Totals (Miles).
Blue Hills: Mattapan Square to Har- land Street Entrance of Blue Hills Reservation, Boston and Milton, .	2.27	-	-	2.27
Fresh Pond: Mount Auburn Street to Huron Avenue, Cambridge, .	.52	-	-	.52
Furnace Brook: Merrymount Park to Blue Hills Reservation, Quincy,	-	2.33	1.00	3.33
Lynnway: Revere Beach Reserva- tion to northerly side of Saugus River, Revere and Lynn, . . .	-	.69	-	.69
Middlesex Fells: Broadway to Mid- dlesex Fells Reservation, Somer- ville, Medford and Malden, . . .	4.60	-	-	4.60
Mystic Valley: High Street to Mid- dlesex Fells Reservation, Medford and Winchester, . . . . .	2.90	-	-	2.90
Nahant Beach: Lynn Line at Wash- ington Street to Spring Road, Nah- ant, . . . . .	.25	-	1.98	2.23
Neponset River: junction of River Street and Damon Street to Blue Hills Reservation, . . . . .	.53	-	1.71	2.24
Revere Beach: Revere Beach Reser- vation to Middlesex Fells Parkway and Mystic River Reservation, Re- vere, Chelsea, Everett and Med- ford, . . . . .	5.24	-	-	5.24
Totals, . . . . .	16.31	3.02	4.69	24.02



TABLE 2.—*Summary of Maps and Plans prepared during the Year ending Dec. 1, 1905, omitting Blue and Other Prints.*

	Abandonments and Conveyances.	Construction.	Copies.	Entrances.	General.	Land and Settlement.	Restriction.	Takings, including Conveyances to Commonwealth.	Topographical.	Working Plans (Office).	Totals.
<i>Parkways.</i>											
Alewife Brook, . . . . .	-	1	-	-	1	-	-	-	5	1	8
Blue Hills, . . . . .	1	3	-	-	-	-	-	1	-	-	5
Fresh Pond, . . . . .	2	4	1	-	2	-	-	1	-	-	10
Furnace Brook, . . . . .	5	10	-	-	-	-	-	5	-	17	37
Lynn Fells, . . . . .	-	-	-	-	-	-	-	3	-	3	6
Lynnway, . . . . .	-	2	-	-	-	-	-	1	-	1	4
Middlesex Fells, . . . . .	3	4	-	-	-	-	3	4	1	3	18
Mystic Valley, . . . . .	2	1	-	-	-	-	5	5	-	2	15
Nahant Beach, . . . . .	-	6	-	-	-	1	-	2	1	8	18
Neponset River, . . . . .	-	-	-	-	-	1	-	1	-	3	5
Revere Beach, . . . . .	7	5	-	1	1	-	-	8	-	25	47
Charles River Speed way, . . . . .	-	-	-	-	-	-	-	1	-	-	1
Winthrop, . . . . .	1	-	2	-	1	-	-	9	-	-	13
Totals, . . . . .	21	36	3	1	5	2	8	41	7	63	187
<i>Reservations.</i>											
Blue Hills, . . . . .	3	4	-	-	1	-	-	8	-	8	24
Charles River, . . . . .	9	9	1	-	1	-	-	33	4	31	89
Hemlock Gorge, . . . . .	-	-	1	-	-	-	-	-	-	1	2
King's Beach, . . . . .	-	-	-	-	-	-	-	-	-	1	1
Lynn Shore, . . . . .	7	11	-	-	1	-	-	-	-	63	82
Middlesex Fells, . . . . .	2	8	-	-	2	1	-	7	1	6	27
Mystic River, . . . . .	-	15	-	-	1	-	-	-	4	26	46
Neponset River, . . . . .	4	1	-	-	-	1	-	5	-	-	11
Quincy Shore, . . . . .	-	13	-	-	2	-	-	-	-	2	17
Revere Beach, . . . . .	12	7	-	6	1	-	-	-	-	5	31
Stony Brook, . . . . .	-	-	-	-	-	-	-	-	-	10	10
Winthrop Shore, . . . . .	7	-	-	-	-	-	-	-	-	-	7
Totals, . . . . .	44	68	2	6	9	2	-	53	9	153	346
Grand totals, . . . . .	65	104	5	7	14	4	8	94	16	216	533

TABLE 3. — Summary of Vouchers of the Engineering Department, including, under Construction, the Entire Estimated Value of Work performed during the Year ending Dec. 1, 1905.

	Construction.	INCIDENTAL TO ENGINEERING DEPARTMENT.										Totals.	Grand Totals.		
		EQUIPMENT.		OPERATING EXPENSES.						Incidental Expenses.	Totals.				
		Offices.	Surveying and Drawing Instru-ments.	Engineering and Sur-veying.	Offices.	Repairs.	Supplies.	Travel.							
General equipment, . . . . .	-	\$205 39	\$524 67	-	-	\$1,617 97	-	\$20 12	\$110 27	-	\$614 04	\$268 35	-	\$730 06	\$730 06
General operating expenses, . . . . .	-	-	-	-	-	-	-	\$20 12	\$110 27	-	\$614 04	\$268 35	\$27 94	2,658 69	2,658 69
<i>Parkways.</i>															
Blue Hills, . . . . .	\$220 96	-	-	279 80	-	-	-	-	-	-	-	95 28	19 60	394 68	615 64
Blue Hills Roads, . . . . .	-	-	-	778 10	-	-	-	-	-	-	-	4 00	5 45	787 55	787 55
Fresh Pond, . . . . .	-	-	-	249 18	-	-	-	-	-	-	-	-	9 10	258 28	258 28
Furnace Brook, . . . . .	28,037 44	-	-	3,038 96	-	-	-	-	-	46 97	-	135 00	39 79	3,260 72	31,298 16
Lynn Fells, . . . . .	-	-	-	2,083 94	-	-	-	-	-	-	-	126 25	56 69	2,266 88	2,266 88
Lynnway, . . . . .	37,805 61	-	-	2,202 50	13 11	-	-	-	-	3 63	-	77 50	26 78	2,323 52	40,129 13
Middlesex Fells, . . . . .	-	-	-	1,010 01	-	-	-	-	-	-	-	-	27 25	1,037 26	1,037 26
Middlesex Fells Roads, . . . . .	-	-	-	603 83	-	-	-	-	-	-	-	9 76	4 20	617 79	617 79
Mystic Valley, . . . . .	26,432 05	-	-	1,644 60	-	-	-	-	-	64 79	-	30 77	39 21	1,779 37	28,211 42
Nahant Beach, . . . . .	42,192 73	-	-	2,417 86	30	-	-	-	-	12 50	-	138 00	49 86	2,618 52	44,811 25
Neponset River, . . . . .	9,826 29	-	-	833 42	41 20	-	-	-	-	9 51	-	90 28	20 71	10,821 41	10,821 41
Revere Beach, . . . . .	61,564 32	-	-	3,178 76	39 87	-	-	-	-	70 35	-	69 00	55 93	3,413 91	64,978 22
Speedway Section (Charles River), . . . . .	1,031 43	-	-	243 40	-	-	-	-	-	-	-	-	13 83	267 23	1,288 66
Spy Pond, . . . . .	-	-	-	2 17	-	-	-	-	-	-	-	-	-	2 17	2 17
Parkway totals, . . . . .	\$207,110 83	-	-	\$18,566 53	\$94 48	-	-	\$207 75	\$775 84	\$368 40	\$20,013 00	\$227,123 83	\$227,123 83	\$227,123 83	\$227,123 83

<i>Reservations.</i>									
Beaver Brook, . . . . .	-	\$15 50	-	-	-	\$1 35	\$16 85	\$16 85	
Blue Hills, . . . . .	-	1,050 35	-	-	-	13 22	1,071 07	1,071 07	
Charles River, . . . . .	-	1,339 01	-	-	-	33 51	1,396 27	4,991 82	
Charles River (Boylston Street Bridge),	-	2,422 97	-	-	-	42 05	2,551 15	21,216 05	
Hemlock Gorge, . . . . .	-	7 50	-	-	-	1 85	9 35	9 35	
King's Beach, . . . . .	-	20 50	-	-	-	10	20 60	20 60	
Lynn Shore, . . . . .	-	7,061 94	\$132 08	-	-	110 12	7,722 50	89,905 89	
Middlesex Fells, . . . . .	-	343 31	-	-	-	4 57	360 13	360 13	
Mystic River, . . . . .	-	3,226 01	24 73	-	-	84 49	3,480 51	17,941 10	
Nantasket Beach, . . . . .	-	165 67	-	-	-	-	166 47	166 47	
Neponset River, . . . . .	-	304 01	-	-	-	-	325 66	325 66	
Quincy Shore, . . . . .	-	1,994 95	11 00	-	-	31 86	2,106 94	17,938 48	
Revere Beach, . . . . .	-	5,353 71	36 90	-	-	82 32	5,644 39	121,645 68	
Stony Brook, . . . . .	-	47 70	-	-	-	2 25	49 95	49 95	
Wellington Bridge (Middlesex Fells Park- way), . . . . .	-	353 58	27 87	-	-	10 22	401 67	7,743 81	
Winthrop Parkway, . . . . .	-	645 50	-	-	-	1 10	666 60	666 60	
Winthrop Shore, . . . . .	-	95 80	-	-	-	2 10	97 90	97 90	
Reservation totals, . . . . .	\$257,389 40	\$24,448 01	\$232 58	-	\$303 53	\$759 63	\$26,178 01	\$283,567 41	
Grand totals, . . . . .	\$464,500 23	\$44,632 51	\$347 18	\$110 27	\$1,125 32	\$1,803 82	\$49,579 76	\$514,079 99	
<i>Credit.</i>									
General equipment, . . . . .	-	-	-	-	-	-	\$51 50	\$51 50	
General operating expenses, . . . . .	-	-	-	-	\$1 25	-	29 90	29 90	
Charles River, . . . . .	\$30 00	-	-	-	-	-	-	30 00	
Total credit, . . . . .	\$30 00	\$36 50	-	-	\$1 25	-	\$81 40	\$111 40	
Net expenditure, . . . . .	\$464,470 23	\$44,632 51	\$347 18	\$110 27	\$1,124 07	\$1,775 17	\$49,498 36	\$513,968 59	

TABLE 4. — Summary of Engineering and Surveying.

	Abandonments and Conveyances.	Boundaries, Plans, Staking and Monuments.	Construction, Includental.	Construction and Maintenance done by Other Departments, Includental.	Construction, preliminary to.	General.	Land and Settlements, Surveys and Plans.	Permits.	Restrictions, Surveys and Plans.	Takings, preliminary to, and Actual.	Topographical.	Totals.
<i>Parkways.</i>												
Blue Hills, . . . . .	\$15 90	-	-	\$171 70	-	\$7 50	-	\$83 50	-	\$1 20	-	\$279 80
Blue Hills Roads, . . . . .	-	-	-	164 10	\$614 00	-	-	-	-	-	-	778 10
Fresh Pond, . . . . .	9 30	-	-	218 35	-	-	\$3 10	18 43	-	-	-	249 18
Furnace Brook, . . . . .	31 90	\$65 30	\$1,794 08	23 20	1,053 63	3 00	-	28 15	-	39 70	-	3,038 96
Lynn Fells, . . . . .	-	-	-	-	-	14 42	543 00	-	\$11 60	332 02	\$1,182 90	2,083 94
Lynnway, . . . . .	-	-	2,155 77	-	44 03	-	-	-	-	2 70	-	2,202 50
Middlesex Fells, . . . . .	9 40	13 20	-	83 10	28 38	46 80	73 30	99 25	5 00	651 58	-	1,010 01
Middlesex Fells Roads, . . . . .	-	-	-	232 30	360 73	-	-	-	-	-	10 80	603 83
Mystic Valley, . . . . .	8 35	-	1,406 22	77 70	-	6 50	43 60	23 48	10 90	67 85	-	1,644 60
Nahant Beach, . . . . .	13 80	-	1,892 50	56 15	232 84	-	21 05	164 82	-	4 80	31 90	2,417 86
Neponset River, . . . . .	3 00	13 60	674 20	-	-	18 12	64 80	29 20	5 80	24 70	-	833 42
Revere Beach, . . . . .	29 60	12 60	2,708 54	65 50	239 47	11 70	3 00	55 45	-	52 90	-	3,178 76
Speedway Section (Charles River), . . . . .	-	68 45	161 25	-	-	3 48	-	8 42	-	1 80	-	243 40
Spy Pond, . . . . .	-	-	-	-	-	2 17	-	-	-	-	-	2 17
Parkway totals, . . . . .	\$121 25	\$173 15	\$10,792 56	\$1,092 10	\$2,573 08	\$113 69	\$751 85	\$510 70	\$83 30	\$1,179 25	\$1,225 60	\$18,566 53





TABLE 5. — Prices paid for Principal Items of Construction.

	PARKWAYS.				RESERVATIONS.						
	MIDDLESEX FIELDS.	REVERE BEACH.	LYNN-WAY.	NEPONSET RIVER.	FURNACE BROOK.	NAHANT BEACH.	REVERE BEACH.	LYNN SHORE.	QUINCY SHORE.	CHARLES RIVER.	MYSTIC RIVER.
CONTRACT No. . . . .	78.	71. 86.	70.	80.	81. 91.	89.	77. 83.	76. 84. 87.	66. 93.	92.	85.
<i>Ballast.</i>											
Gravel ballast (cubic yards), . .	-	\$1 10	-	-	-	-	-	-	-	-	-
<i>Drains.</i>											
30-inch vitrified pipe (lineal foot).	-	-	-	\$3 00	-	-	-	-	-	-	-
24-inch vitrified pipe (lineal foot).	-	-	-	-	\$1 54	-	-	-	-	-	-
20-inch vitrified pipe (lineal foot).	-	-	-	-	1 10	-	-	-	-	-	-
18-inch vitrified pipe (lineal foot).	-	-	-	77	84	\$1 00	-	-	-	-	\$0 85
15-inch vitrified pipe (lineal foot).	-	-	-	70	70	75	-	\$0 75	-	-	70
12-inch vitrified pipe (lineal foot).	\$0 50	-	62	-	53	50	\$0 60	50	-	-	50
10-inch vitrified pipe (lineal foot).	40	-	44	45	-	40	50	40	-	32	\$1 00
8-inch vitrified pipe (lineal foot).	-	-	36	30	-	-	40	30	-	-	-
<i>Edgestones.</i>											
Furnishing and setting, straight (lineal foot).	1 00	-	1 25	80	-	-	-	-	-	90	1 10
Furnishing and setting, curved (lineal foot).	1 25	-	-	1 00	-	-	-	-	-	1 40	-
Concrete (lineal foot), . . . .	-	-	-	-	-	60	35	-	-	-	-









Commonwealth of Massachusetts  
**METROPOLITAN PARK COMMISSION**  
**MYSTIC RIVER RESERVATION**  
**PRELIMINARY PLAN FOR DEVELOPMENT**  
 High Street to Craddock Bridge



JANUARY 1906

JOHN R. RABLIN ENGINEER





## FINANCIAL STATEMENT.

DEC. 1, 1904, TO DEC. 1, 1905.

Metropolitan Parks Loan Fund, . . . . .		\$7,990,000 00
Receipts from bath-house, sales, etc., . . . . .		198,334 01
		\$8,188,334 01

### Expenditures.

Blue Hills Reservation:—		
Land, . . . . .		\$1,285 25
Construction:—		
Contracts:—		
J. F. Stone, head- quarters, . . . . .	\$5,897 36	
Arthur H. Tucker, refectory, . . . . .	2,507 00	
	\$8,404 36	
Labor and materials, . . . . .	3,805 82	
		12,210 18
Engineering:—		
Pay rolls, . . . . .	\$1,036 55	
Expenses, . . . . .	20 72	
		1,057 27
Landscape Architects:—		
Services, . . . . .	\$865 36	
Expenses, . . . . .	37 09	
		902 45
Legal, . . . . .		566 00
Claims, . . . . .		142 00
Architects' services, . . . . .		432 64
Headquarters, furnishings and fittings, . . . . .		951 55
Repairs of buildings, . . . . .		371 37
Sanitary, labor and signs, . . . . .		47 85
		\$17,966 56
Middlesex Fells Reservation:—		
Land, . . . . .		\$5,000 00
Construction, labor and materials, . . . . .		26,812 51
Engineering:—		
Pay rolls, . . . . .	\$280 88	
Expenses, . . . . .	13 07	
		293 95
Landscape Architects:—		
Services, . . . . .	\$4,307 70	
Expenses, . . . . .	216 08	
		4,523 78
Legal, . . . . .		21 85
		36,652 09
<i>Amounts carried forward,</i> . . . . .		\$54,618 65
		\$8,188,334 01

*Amounts brought forward,* . . . . . \$54,618 65 \$8,188,334 01

Revere Beach Reservation:—

Construction:—

Contracts:—

E. W. Everson & Co., grading, etc., . . . .	\$76,839 81
Patrick Mc-Govern, shelter foundations, . .	20,078 13
G. W. & F. Smith Iron Co., iron and steel work, shelters, . . .	6,930 72
John Y. Mainland, carpenter work, shelters, . .	5,598 00
Patrick Mc-Govern, granolithic seats, . .	5,050 45
G. W. & F. Smith Iron Co., electric light posts, . .	1,575 00
H. P. Cummings Co., sanitary repairs, . . .	598 00

\$116,670 11

Labor and materials, . . . . . 1,881 61

\$118,551 72

Engineering:—

Pay rolls, . . . . .	\$4,989 96
Expenses, . . . . .	373 62

5,363 58

Legal, . . . . .	77 70
Claims, . . . . .	150 00
Town of Revere, changes in water main, . . .	3,000 00
Conduit for electric lighting wires, . . . .	2,018 98
One-half cost of automobile truck, . . . .	1,208 40
Architects' services, shelters and sanitary, . .	931 88
Park settees, . . . . .	480 00
Watering cart, . . . . .	352 45
Drinking fountains for shelters, . . . . .	300 00

132,434 71

Stony Brook Reservation:—

Land, . . . . . \$962 50

Engineering:—

Pay rolls, . . . . .	\$47 30
Expenses, . . . . .	2 25

49 55

Landscape Architects, services, . . . . .	25 00
Legal, . . . . .	56 63

1,093 68

Beaver Brook Reservation:—

Construction, labor and materials, . . . . . \$846 35

Engineering:—

Pay rolls, . . . . .	\$15 50
Expenses, . . . . .	1 35

16 85

*Amounts carried forward,* . . . . . \$863 20 \$188,147 04 \$8,188,334 01

<i>Amounts brought forward,</i>	\$863 20	\$188,147 04	\$8,188,334 01
Landscape Architects:—			
Services, . . . . .	\$295 13		
Expenses, . . . . .	8 41		
	<hr/>	303 54	
Hemlock Gorge Reservation:—			1,166 74
Engineering:—			
Pay rolls, . . . . .	\$7 50		
Expenses, . . . . .	1 85		
	<hr/>	\$9 35	
Landscape Architects:—			
Services, . . . . .	\$153 04		
Expenses, . . . . .	2 00		
	<hr/>	155 04	
Charles River Reservation:—			164 39
Land, . . . . .	\$7,198 73		
Construction:—			
Contract, Ambursen Hydraulic Construction Co., Finlay mill dam, . . . . .	\$1,025 41		
Labor and materials, . . . . .	979 21		
	<hr/>	2,004 62	
Engineering:—			
Pay rolls, . . . . .	\$1,504 67		
Expenses, . . . . .	118 88		
	<hr/>	1,623 55	
Landscape Architects:—			
Services, . . . . .	\$655 42		
Expenses, . . . . .	16 19		
	<hr/>	671 61	
Legal, . . . . .		136 20	
Claims, . . . . .		100 00	
Advertising contracts, . . . . .		69 38	
	<hr/>		11,804 09
Neponset River Reservation:—			
Land, . . . . .	\$13,469 19		
Engineering:—			
Pay rolls, . . . . .	\$216 91		
Expenses, . . . . .	21 40		
	<hr/>	238 31	
Legal, . . . . .		33 63	
Land experts, . . . . .		150 00	
	<hr/>		13,891 13
Mystic River Reservation:—			
Land, . . . . .	\$822 39		
Construction, contract, Coleman Bros., Jerome Street to Main Street, . . . . .		8,144 02	
Engineering:—			
Pay rolls, . . . . .	\$2,858 04		
Expenses, . . . . .	762 99		
	<hr/>	3,621 03	
Landscape Architects:—			
Services, . . . . .	\$630 38		
Expenses, . . . . .	24 30		
	<hr/>	654 68	
Land experts, . . . . .		315 00	
Printing Mystic River improvement report, . . . . .		1,601 47	
Advertising contracts, . . . . .		124 49	
	<hr/>		15,283 08
<i>Amounts carried forward</i>		\$230,456 47	\$8,188,334 01

*Amounts brought forward,* . . . . . \$230,456 47 \$8,188,334 01

Lynn Shore Reservation:—

Land, . . . . . \$4,406 93

Construction:—

Contracts:—

Coleman Bros.,  
sea wall and  
grading, . . . \$53,572 23

James Doherty,  
grading and  
surfacing, . . . 22,594 82

Gow & Palmer,  
concrete piles, . . . 2,581 00

Alpheus B. Rob-  
bins, iron fence, . . . 5,233 34

Aberthaw Con-  
struction Co.,  
steel for wall, . . . 820 57

\$84,801 96

Labor and materials, . . . 1,708 86

86,510 82

Engineering:—

Pay rolls, . . . . . \$6,840 39

Expenses, . . . . . 777 40

7,617 79

Landscape Architects:—

Services, . . . . . \$303 24

Expenses, . . . . . 4 88

308 12

Legal, . . . . . 22 05

Watering cart, . . . . . 352 45

Advertising contracts, . . . . . 144 65

90,362 81

Quincy Shore Reservation:—

Construction:—

Contracts:—

Coleman Bros.,  
grading, Atlan-  
tic Street to  
S q u a n t u m  
Street, . . . \$12,457 84

Newell & Snow-  
ling Construc-  
tion Co., grad-  
ing, . . . 3,451 42

\$15,909 26

Labor and materials, . . . 81 05

\$15,990 31

Engineering:—

Pay rolls, . . . . . \$1,695 88

Expenses, . . . . . 211 07

1,906 95

Landscape Architects:—

Services, . . . . . \$740 16

Expenses, . . . . . 68 88

809 04

Legal, . . . . . 2 63

Land experts, . . . . . 50 00

Advertising contracts, . . . . . 86 79

18,845 72

*Amounts carried forward,* . . . . . \$348,665 00 \$8,188,334 01

*Amounts brought forward,* . . . . . \$348,665 00 \$8,188,334 01

Winthrop Shore Reservation:—

Land, . . . . .		\$8,025 84
Construction, labor and materials, . . . . .		729 91
Engineering:—		
Pay rolls, . . . . .	\$88 60	
Expenses, . . . . .	2 10	
		<u>90 70</u>
Legal, . . . . .		6 90
Land experts, . . . . .		1,847 00
		<u>10,700 35</u>

King's Beach Reservation:—

Engineering:—		
Pay rolls, . . . . .	\$20 50	
Expenses, . . . . .	10	
		<u>\$20 60</u>
Landscape Architects, services, . . . . .		50 00
		<u>70 60</u>

Winthrop Parkway:—

Land, . . . . .		\$15,196 50
Engineering:—		
Pay rolls, . . . . .	\$446 90	
Expenses, . . . . .	24 50	
		<u>471 40</u>

Landscape Architects:—

Services, . . . . .	\$230 30	
Expenses, . . . . .	6 63	
		<u>236 93</u>

15,904 83

Wellington Bridge:—

Construction, labor and materials, . . . . .		\$1,092 15
Engineering:—		
Pay rolls, . . . . .	\$353 58	
Expenses, . . . . .	48 09	
		<u>401 67</u>
Drawtenders, . . . . .		448 00
Power for draw, . . . . .		500 00
Lighting, . . . . .		291 83
Drawtender's house foundations, . . . . .		1,274 71
Drawtender's house repairs, . . . . .		279 93
Loam, . . . . .		133 80
Boats, etc., . . . . .		88 00
Telephones, . . . . .		31 49
Tool house, . . . . .		17 05
Miscellaneous, . . . . .		19 96
		<u>4,578 59</u>

Nahant Beach Bath-house:—

Construction, contract, H. P. Cummings Co., building, . . . . .		\$59,941 83
Architects' services and plans, . . . . .		3,085 03
Cutting artificial stone, . . . . .		500 00
Extractor motor driver, . . . . .		600 00
Furnishings, . . . . .		776 05
Valuable envelopes, . . . . .		350 79
Towels, . . . . .		337 50
Supplies, . . . . .		213 40
Fire alarm, . . . . .		144 69
Tickets, . . . . .		140 75
		<u>66,090 04</u>

*Amounts carried forward,* . . . . . \$66,090 04 \$879,919 37 \$8,188,334 01



<i>Amounts brought forward,</i>	\$66,090 04	\$379,919 37	\$8,188,334 01
Turnstiles and cancelling machine,	140 00		
Mirrors and frames,	163 50		
Fire extinguishers,	137 75		
Wiring, arc lights,	125 00		
Hardware,	121 00		
Baskets,	109 85		
Corrugated matting,	99 00		
Cash register,	96 10		
Hose,	87 35		
Stockings,	82 50		
Engine room supplies,	75 96		
Safe,	50 00		
Rubber key bands,	48 40		
Rubbish barrels,	44 40		
Rubber caps,	42 00		
Disinfectant,	40 15		
Rings and snaps,	34 73		
Stationery,	33 80		
Brass railings,	30 00		
Flags,	25 30		
Plumbing,	25 00		
Boat and oars,	21 50		
Wringers,	20 00		
Money bags,	17 00		
Window guards,	10 88		
Brass checks,	10 00		
Badges,	6 87		
Hair brushes,	6 50		
		<u>67,794 58</u>	
Boylston Street Bridge:—			
Construction, contract, Michael McDonough, bridge,	\$7,021 70		
Engineering:—			
Pay rolls,	\$1,500 70		
Expenses,	182 86		
		<u>1,683 56</u>	
Wheelwright & Haven, architects,	546 88		
Advertising, contracts,	40 44		
		<u>9,292 58</u>	
General expense:—			
Engineering:—			
Pay rolls,	\$706 37		
Expenses,	999 84		
		<u>\$1,706 23</u>	
Legal,	2,002 38		
Claims,	1,541 67		
Expenses Apportionment Commission,	666 76		
Travelling,	89 98		
		<u>6,007 02</u>	
		<u>\$163,013 55</u>	
Amounts charged to Dec. 1, 1904,		7,510,817 28	
		<u>7,973,830 83</u>	
Balance in hands of State Treasurer,			<u>\$214,503 18</u>

Metropolitan Parks Loan Fund, Series II., . . . . .	\$4,485,000 00
Receipts from sales, etc., . . . . .	29,907 41

\$4,514,907 41

*Expenditures.*

Blue Hills Parkway:—				
Construction, labor and materials (extension),	\$28,473 32			
Engineering:—				
Pay rolls, . . . . .	\$276 30			
Expenses, . . . . .	113 38			
	389 68			
Landscape Architects, services, . . . . .	10 18			
	\$28,873 13			
Middlesex Fells Parkway:—				
Land, . . . . .	\$4,108 75			
Construction, contract, Coleman Bros., Middlesex Avenue to Revere Beach Parkway, . . . . .	7,311 27			
Engineering:—				
Pay rolls, . . . . .	\$959 33			
Expenses, . . . . .	26 80			
	986 13			
Landscape Architects:—				
Services, . . . . .	\$211 92			
Expenses, . . . . .	16 56			
	228 48			
Legal, . . . . .	21 70			
Claims, . . . . .	175 00			
	12,831 33			
Mystic Valley Parkway:—				
Land, . . . . .	\$1,000 00			
Construction:—				
Contract, Coleman Bros., grading, etc., . . . . .	\$21,352 90			
Labor and materials, . . . . .	1,166 29			
	22,519 19			
Engineering:—				
Pay rolls, . . . . .	\$1,451 05			
Expenses, . . . . .	133 43			
	1,584 48			
Landscape Architects:—				
Services, . . . . .	\$110 12			
Expenses, . . . . .	28 41			
	138 53			
Legal, . . . . .	97 67			
Land experts, . . . . .	357 35			
	25,697 22			
Revere Beach Parkway:—				
Land, . . . . .	\$1,083 79			
Construction:—				
Contracts:—				
T. Stuart & Son, grading and surfacing Main Street, Everett, to Fellsway, . . . . .	\$24,354 32			
American Bridge Co., superstructure, Malden River Bridge, . . . . .	13,763 11			
Metropolitan Contracting Co., bridge abutments, . . . . .	9,159 42			
	\$47,276 85			
<i>Am'ts car'd for'd,</i>	\$47,276 85	\$1,083 79	\$67,401 73	\$4,514,907 41

<i>Am'ts bro't for'd,</i>	\$47,276 85	\$1,063 79	\$67,401 73	\$4,514,907 41
Construction— <i>Con.</i>				
Contracts— <i>Con.</i>				
U. S. Wood Preserving Co., wooden paving blocks, . . .	3,070 00			
Scherzer Rolling Lift Bridge Co., draw, . . .	500 00			
Wm. H. Graham, draughtender's house, . . .	602 50			
	<hr/>	\$51,449 35		
Labor and materials, . . .		6,029 94		
		<hr/>	57,479 29	
Engineering:—				
Pay rolls, . . . . .		\$3,161 97		
Expenses, . . . . .		350 04		
		<hr/>	3,512 01	
Landscape Architects:—				
Services, . . . . .		\$84 28		
Expenses, . . . . .		3 55		
		<hr/>	87 83	
Legal, . . . . .			4 40	
Land experts, . . . . .			420 00	
Watering cart, . . . . .			400 00	
Footbridge, Mill Creek, . . . . .			200 00	
Advertising contracts, . . . . .			154 53	
Stone dust, . . . . .			372 30	
Boat and davits, . . . . .			114 65	
Miscellaneous, . . . . .			39 00	
			<hr/>	63,867 80
Neponset River Parkway:—				
Land, . . . . .			\$1,529 00	
Construction:—				
Contract, T. H. Gill & Co., Brush Hill Road to Blue Hill Ave., . . .		\$11,032 80		
Labor and materials, . . . . .		552 89		
		<hr/>	11,635 69	
Engineering:—				
Pay rolls, . . . . .		\$810 82		
Expenses, . . . . .		120 50		
		<hr/>	931 32	
Landscape Architects, services, . . . . .			25 00	
Legal, . . . . .			233 70	
Land experts, . . . . .			135 00	
Watering cart, . . . . .			371 45	
			<hr/>	14,861 16
Fresh Pond Parkway:—				
Land, . . . . .			\$1,800 00	
Construction, contract, W. A. & H. A. Root, fence, Lowell Memorial Park, . . . . .			5,064 30	
Engineering:—				
Pay rolls, . . . . .		\$195 20		
Expenses, . . . . .		4 75		
		<hr/>	199 95	
Landscape Architects:—				
Services, . . . . .		\$165 94		
Expenses, . . . . .		2 50		
		<hr/>	168 44	
Legal, . . . . .			18 05	
Architects, . . . . .			297 90	
Miscellaneous, . . . . .			65 00	
			<hr/>	7,613 64
<i>Amounts carried forward,</i>				\$153,744 33 \$4,514,907 41

*Amounts brought forward,* . . . . . \$153,744 33 \$4,514,907 41

Furnace Brook Parkway:—

Land, . . . . . \$1,720 00

Construction:—

Contracts:—

Rowe & Perini,  
Adams Street to  
Blue Hills Res-  
ervation, . . . \$13,038 60

John Cashman,  
Granite Branch  
Bridge, . . . 3,736 81

\$16,775 41

Labor and materials, . . . 8,809 59

25,585 00

Engineering:—

Pay rolls, . . . . . \$2,676 48

Expenses, . . . . . 255 33

2,931 81

Landscape Architects:—

Services, . . . . . \$382 26

Expenses, . . . . . 7 49

389 75

Wheelwright & Haven, architects, . . . 788 64

Legal, . . . . . 71 72

31,486 92

Nahant Beach Parkway:—

Land, . . . . . \$15,000 00

Construction:—

Contract, Coleman Bros., surfac-  
ing, etc., . . . . . \$41,539 23

Labor and materials, . . . 626 85

42,166 08

Engineering:—

Pay rolls, . . . . . \$2,398 59

Expenses, . . . . . 203 73

2,602 32

Landscape Architects:—

Services, . . . . . \$95 17

Expenses, . . . . . 2 77

95 17

Claims, . . . . . 130 00

One-half cost of automobile truck, . . . 1,208 40

Planting, . . . . . 300 00

Lighting, . . . . . 25 00

Advertising contract, . . . . . 1 80

61,528 77

Charles River Speedway:—

Construction:—

Contract, Coleman Bros., play-  
ground, . . . . . \$2,964 05

Labor and materials, . . . 1,087 00

\$4,051 05

Engineering:—

Pay rolls, . . . . . \$183 28

Expenses, . . . . . 76 83

260 11

Heater, headquarters, . . . . . 466 00

Swings, seats, etc., playground, . . . 169 53

Shelter, . . . . . 30 00

4,976 69

*Amounts carried forward,* . . . . . \$251,736 71 \$4,514,907 41

<i>Amounts brought forward,</i>		\$251,736 71	\$4,514,907 41
Blue Hills Roads:—			
Engineering:—			
Pay rolls,		\$704 00	
Expenses,		9 45	
		<u>713 45</u>	
			713 45
Middlesex Fells Roads:—			
Construction, labor and materials,			
		\$981 25	
Engineering:—			
Pay rolls,		\$572 00	
Expenses,		13 96	
		<u>585 96</u>	
			1,567 21
Lynnway:—			
Construction:—			
Contracts:—			
American Bridge			
Co., superstructure, Saugus			
River Bridge,	\$13,001 17		
Metropolitan			
Contracting			
Co., bridge			
abutments,	9,571 07		
U. S. Wood Pre-			
serving Co.,			
wooden paving			
blocks,	5,748 75		
Scherzer Rolling			
Lift Bridge Co.,			
draw,	500 00		
Wm. H. Graham,			
drawtender's			
house,	602 50		
E. W. Everson &			
Co., grading,			
surfacing, etc.,	1,263 63		
		<u>30,687 12</u>	
Labor and materials,		967 76	
		<u>\$31,654 88</u>	
Engineering:—			
Pay rolls,		\$2,012 42	
Expenses,		182 70	
		<u>2,195 12</u>	
Boats and davits,		114 65	
Steps to float,		85 00	
Miscellaneous,		79 02	
Architects,		12 50	
		<u>34,141 17</u>	
Lynn Fells Parkway:—			
Engineering:—			
Pay rolls,		\$2,068 77	
Expenses,		182 94	
		<u>\$2,251 71</u>	
Landscape Architects, services,		25 00	
Claims,		300 00	
		<u>2,576 71</u>	
Spy Pond Parkway:—			
Engineering, pay roll,			
		\$2 17	
		<u>2 17</u>	
<i>Amounts carried forward,</i>		\$290,737 42	\$4,514,907 41



<i>Amounts brought forward,</i>		\$290,737 42	\$4,514,907 41
General expense:—			
Engineering:—			
Pay rolls,	\$737 68		
Expenses,	611 35		
		\$1,349 03	
Landscape Architects:—			
Services,	\$130 32		
Expenses,	8 36		
		138 68	
Legal,		2,768 79	
Claims,		726 82	
			4,983 32
			\$295,720 74
Amount charged to Dec. 1, 1904,		3,965,025 14	4,260,745 88
			\$254,161 53

### METROPOLITAN PARKS SYSTEM MAINTENANCE.

Appropriation for 1905, . . . . . \$135,415 00

#### *Expenditures.*

General expense:—			
Police:—			
Pay rolls,	\$46,303 18		
Uniforms and equipment,	4,648 99		
		\$50,952 17	
Travelling,		364 90	
Salaries,		10,425 00	
Rent,		2,413 88	
Stationery,		913 65	
Maps and books,		568 93	
Telephones,		590 72	
Annual report,		1,229 27	
Extra clerical assistance,		220 47	
Postage, etc.,		270 17	
Advertising rules,		109 64	
Photographs and slides,		85 87	
Rent of typewriter,		27 50	
Towel supply,		24 40	
Typewriter repairs,		25 10	
Card cabinet,		35 00	
Report on zoölogical garden,		18 00	
Social law library,		20 00	
Rubber stamps,		11 20	
Fountain pens,		10 00	
Brooms, dusters, etc.,		11 24	
Spring water,		8 25	
Account books,		8 75	
Cleaning carpet,		8 04	
Motor bicycle licenses,		8 00	
Desk lamp,		4 65	
Office repairs,		6 60	
Frames,		5 00	
Repairing clock,		3 50	
Sharpening erasers, etc.,		1 25	
Chair,		1 50	
			\$185,415 00
<i>Amounts carried forward,</i>		\$63,982 65	

<i>Amounts brought forward,</i>	\$68,382 65	\$185,415 00
Rug,	5 00	
Bronze bolts,	2 00	
Miscellaneous,	6 85	
	<hr/>	\$68,396 50
Blue Hills Reservation:—		
Labor,	\$15,837 19	
Teaming,	321 25	
Keep of horses,	2,129 33	
	<hr/>	\$18,287 77
Travelling,	3 90	
General supplies,	2,342 25	
Horses, carriages, etc.,	559 18	
Telephones,	471 38	
Repairs,	243 18	
Tool house,	1,500 00	
Water rates,	212 12	
Lighting office,	138 29	
Hydrants,	132 85	
Express,	76 93	
Johnson pump,	62 46	
Pumps,	57 00	
Laundry,	35 45	
Clock,	18 00	
Furnishings, headquarters,	39 81	
Duck suits,	9 00	
Letterpress stand,	8 00	
Money bag,	8 00	
Signs,	7 05	
Blankets,	6 75	
Physician,	3 00	
Miscellaneous,	2 20	
	<hr/>	24,224 57
Middlesex Fells Reservation:—		
Labor and supplies, gypay and brown-tail moth work,	\$24,212 35	
Labor,	\$11,549 25	
Teaming,	1,883 00	
Keep of horses,	1,077 86	
	<hr/>	14,510 11
Travelling,	97 58	
Lighting,	538 46	
General supplies,	1,012 36	
Horses, carriages, etc.,	183 01	
Telephones,	116 82	
Repairs,	91 46	
Sanitary,	84 05	
Johnson pump,	62 46	
Express,	57 64	
Lighting office,	53 36	
Hydrant,	9 78	
Miscellaneous,	5 45	
	<hr/>	41,034 89
Revere Beach Reservation:—		
Labor,	\$7,334 94	
Teaming,	15 75	
Keep of horses,	389 15	
	<hr/>	\$7,739 84
Lighting,	2,771 35	
Watering,	975 00	
Travelling,	70 61	
	<hr/>	
<i>Amounts carried forward,</i>	\$11,556 80	\$185,415 00

<i>Amounts brought forward,</i>	\$11,556 80	\$133,635 96	\$185,415 00
General supplies,	598 30		
Horses, carriages, etc.,	372 59		
Telephones,	419 30		
Repairs,	36 65		
Photographs,	60 45		
Loam, etc.,	37 75		
Shelters,	30 70		
Water rates,	22 00		
Express,	13 40		
Heater,	12 40		
Auto truck license and number,	4 00		
Miscellaneous,	11 78		
		13,176 12	
<b>Stony Brook Reservation:—</b>			
Labor,	\$3,027 95		
Teaming,	91 50		
Keep of horses,	234 74		
		\$3,354 19	
General supplies,		129 04	
Horses, etc.,		54 60	
Telephones,		49 82	
Repairs,		29 60	
Lighting office,		2 25	
Sand,		90	
		3,620 40	
<b>Beaver Brook Reservation:—</b>			
Labor,	\$1,418 93		
Teaming,	25 00		
Keep of horses,	81 47		
		\$1,525 45	
Travelling,		6 50	
General supplies,		64 24	
Horses, carriages, etc.,		55 11	
Telephones,		51 40	
Repairs,		57 25	
Labor and supplies, gypsy and brown-tail moth work,		187 35	
Plumbing, superintendent's house,		80 52	
Lockers for officers,		20 75	
Sewer assessment,		4 50	
Water rates,		16 00	
		2,069 07	
<b>Charles River Reservation:—</b>			
<b>Riverside Section:—</b>			
Labor,	\$3,594 58		
Teaming,	99 50		
		\$3,694 08	
Lighting,		8 50	
Travelling,		108 71	
General supplies,		849 26	
Horses, carriages, etc.,		85 75	
Telephones,		162 72	
Repairs,		13 50	
Labor and supplies, gypsy and brown-tail moth work,		99 85	
Lighting office,		153 94	
Water rates,		50 36	
Loam,		36 00	
Express,		20 60	
Life buoys,		20 59	
<i>Amounts carried forward,</i>	\$5,303 86	\$152,521 55	\$185,415 00

<i>Amounts brought forward,</i>		\$5,303 86	\$152,521 55	\$185,415 00
Covering cushions, . . . . .		15 00		
Flag, . . . . .		10 50		
Chair, . . . . .		7 00		
Physician's services, . . . . .		6 00		
			5,342 36	
Charles River Reservation:—				
Speedway Section:—				
Labor, . . . . .	\$9,179 95			
Teaming, . . . . .	1,819 75			
Keep of horses, . . . . .	1,388 88			
		\$12,388 58		
Watering, . . . . .		2,182 91		
Lighting, . . . . .		2,089 46		
General supplies, . . . . .		711 62		
Horses, carriages, etc., . . . . .		202 03		
Telephones, . . . . .		141 34		
Repairs, . . . . .		64 10		
Labor and supplies, gypsy and brown-tail moth work, . . . . .		500 00		
Travelling, . . . . .		13 46		
Loam, . . . . .		133 00		
Water rates, . . . . .		79 50		
Lighting office, etc., . . . . .		78 04		
Fence, . . . . .		77 00		
Watchman's clock, . . . . .		75 00		
Shrubs, . . . . .		38 45		
Laundry, . . . . .		33 85		
Awnings, . . . . .		19 25		
Express, . . . . .		3 60		
Miscellaneous, . . . . .		10 04		
			18,841 23	
Neponset River Reservation:—				
Labor, . . . . .	\$724 20			
Teaming, . . . . .	105 00			
		\$829 20		
Telephones, . . . . .		34 70		
			863 90	
Mystic River Reservation:—				
Labor, . . . . .	\$456 75			
Teaming, . . . . .	36 00			
		\$492 75		
Telephones, . . . . .		39 65		
			532 40	
Lynn Shore Reservation:—				
Labor, . . . . .	\$662 21			
Lighting, . . . . .	337 05			
General supplies, . . . . .	84 88			
Travelling, . . . . .	5 80			
Telephones, . . . . .	3 00			
Advertising rules, . . . . .	21 15			
			1,114 09	
Quincy Shore Reservation:—				
Labor, . . . . .	\$11 20			
			11 20	
Winthrop Shore Reservation:—				
Pay rolls, . . . . .	\$894 75			
Teaming, . . . . .	104 50			
		\$999 25		
Watering, . . . . .		736 31		
Lighting, . . . . .		620 68		
General supplies, . . . . .		395 69		
<i>Amounts carried forward,</i>		\$2,751 93	\$179,226 73	\$185,415 00

<i>Amounts brought forward,</i>	\$2,751 93	\$179,226 73	\$185,415 00
Repairs to granolithic walk,	95 00		
Telephones,	68 05		
Horses, carriages, etc.,	40 00		
Water rates,	9 00		
Travelling,	1 60		
		<u>2,965 58</u>	<u>182,192 31</u>
Balance,			<u>\$3,222 69</u>

## METROPOLITAN PARKS BOULEVARD MAINTENANCE.

Appropriation for 1905, . . . . . \$88,824 00

*Expenditures.*

General expense:—			
Police:—			
Pay rolls,	\$17,456 50		
Uniforms and equipment,	2,527 21		
		<u>\$19,983 71</u>	
Salaries,		2,79 81	
Rent,		2,595 03	
Telephones,		559 19	
Stationery,		1,155 09	
Extra clerical assistance,		278 60	
Travelling,		187 19	
Maps and books,		219 49	
Safe,		135 00	
Advertising rules,		130 49	
Postage, etc.,		217 37	
Towel supply,		44 95	
Rent of typewriter,		33 00	
Office supplies,		34 56	
Typewriter supplies,		30 60	
Typewriter repairs,		26 89	
Office repairs,		28 11	
Card cabinet and cards,		34 75	
Ice,		23 00	
Spring water,		4 75	
Binding records,		6 00	
Frames,		5 75	
Chair,		6 40	
Lettering books,		5 00	
Sharpening erasers, etc.,		1 37	
Cases,		2 30	
Letter boxes,		9 25	
Motor bicycle licenses,		4 00	
Lantern slides,		1 35	
			<u>\$34,043 00</u>
Blue Hills Parkway:—			
Labor,	\$1,978 25		
Teaming,	261 50		
Keep of horses,	353 50		
		<u>\$2,593 25</u>	
Watering,		1,990 44	
Lighting,		2,575 71	
Police signal system,		405 00	
General supplies,		361 43	
Horses, carriages, etc.,		44 75	
Telephones,		61 97	
Repairs,		4 34	
			<u>8,036 89</u>
<i>Amounts carried forward,</i>		<u>\$42,079 89</u>	<u>\$88,824 00</u>



<i>Amounts brought forward,</i>		\$42,079 89	\$88,824 00
<b>Middlesex Fells Parkway:—</b>			
Labor, . . . . .	\$5,059 51		
Teaming, . . . . .	1,293 75		
Keep of horses, . . . . .	18 50		
	<hr/>	\$6,371 76	
Watering, . . . . .		1,997 60	
Lighting, . . . . .		6,232 90	
General supplies, . . . . .		609 76	
Horses, carriages, etc., . . . . .		173 79	
Telephones, . . . . .		89 60	
Repairs, . . . . .		61 45	
Labor and supplies, gypsy and brown-tail moth work, . . . . .		326 50	
Sand, . . . . .		42 50	
Shrubs, . . . . .		33 50	
Lighting office, . . . . .		14 03	
Water rates, . . . . .		4 50	
Express, . . . . .		2 68	
		<hr/>	15,960 57
<b>Mystic Valley Parkway:—</b>			
Labor, . . . . .	\$2,383 96		
Teaming, . . . . .	421 50		
Keep of horses, . . . . .	107 35		
	<hr/>	\$2,912 81	
Watering, . . . . .		1,024 96	
Lighting, . . . . .		2,634 49	
General supplies, . . . . .		302 99	
Horses, carriages, etc., . . . . .		55 05	
Telephones, . . . . .		98 45	
Repairs, . . . . .		18 33	
Labor and supplies, gypsy and brown-tail moth work, . . . . .		1,649 58	
Shrubs, . . . . .		6 80	
Express, . . . . .		5 35	
Miscellaneous, . . . . .		13 69	
		<hr/>	8,722 55
<b>Revere Beach Parkway:—</b>			
Labor, . . . . .	\$4,338 13		
Teaming, . . . . .	86 50		
Keep of horses, . . . . .	119 13		
	<hr/>	\$4,543 76	
Watering, . . . . .		4,711 53	
Lighting, . . . . .		4,925 82	
General supplies, . . . . .		749 97	
Horses, carriages, etc., . . . . .		189 04	
Telephones, . . . . .		2 72	
Broken stone, . . . . .		165 53	
Furnishings, . . . . .		23 60	
Photographs, . . . . .		15 30	
Heater, . . . . .		12 45	
		<hr/>	15,339 77
<b>Neponset River Parkway:—</b>			
Labor, . . . . .	\$341 50		
Watering, . . . . .	290 00		
Lighting, . . . . .	270 94		
General supplies, . . . . .	6 81		
	<hr/>		909 25
<b>Nahant Beach Parkway:—</b>			
Labor, . . . . .	\$1,605 50		
Teaming, . . . . .	65 00		
	<hr/>	\$1,670 50	
<i>Amounts carried forward,</i>		\$1,670 50	\$83,012 03
			\$88,824 00

<i>Amounts brought forward,</i>	\$1,670 50	\$83,012 03	\$83,824 00
Watering, . . . . .	200 88		
Lighting, . . . . .	425 46		
General supplies, . . . . .	212 27		
Telephones, . . . . .	155 08		
Horses, carriages, etc., . . . . .	103 60		
Travelling, . . . . .	31 85		
Stone dust, . . . . .	75 00		
Express, . . . . .	4 73		
	<hr/>	2,879 37	
Fresh Pond Parkway:—			
Labor, . . . . .	\$465 50		
Teaming, . . . . .	9 00		
	<hr/>	\$474 50	
Watering, . . . . .	242 95		
Lighting, . . . . .	448 50		
General supplies, . . . . .	170 52		
Labor and supplies, gypsy and brown-tail moth work, . . . . .	4 50		
Crushed stone, . . . . .	16 41		
	<hr/>	1,357 33	
		<hr/>	87,248 73
Balance, . . . . .			\$1,575 22

NANTASKET BEACH MAINTENANCE.

Appropriation for 1905, . . . . . \$17,900 00

*Expenditures.*

Labor, . . . . .	\$3,007 77		
Teaming, . . . . .	260 00		
Keep of horses, . . . . .	91 83		
	<hr/>	\$3,359 60	
Police:—			
Pay rolls, . . . . .	\$9,897 44		
Uniforms and equipment, . . . . .	1,256 09		
	<hr/>	11,153 53	
General supplies, . . . . .	189 73		
Watering, . . . . .	712 90		
Lighting, . . . . .	1,438 33		
Horses, carriages, etc., . . . . .	92 60		
Telephones, . . . . .	113 20		
Repairs, . . . . .	50 25		
Travelling, . . . . .	39 05		
Water rates, . . . . .	319 70		
Rent, superintendent's house, . . . . .	266 64		
Loam, etc., . . . . .	56 75		
Shades for dormitory, . . . . .	16 87		
Express, . . . . .	36 25		
Miscellaneous, . . . . .	5 00		
	<hr/>	17,850 40	
Balance, . . . . .			\$49 60

WELLINGTON BRIDGE MAINTENANCE.

Appropriation for 1905, . . . . . \$2,661 00

*Expenditures.*

Labor, . . . . .	\$1,569 50	
Teaming, . . . . .	42 00	
	<hr/>	\$1,611 50
Watering, . . . . .		120 61
Lighting, . . . . .		524 00
General supplies, . . . . .		92 95
Telephones, . . . . .		37 74
Repairs, . . . . .		82 22
Shrubs, . . . . .		172 97
Water rates, . . . . .		15 35
		<hr/>
		2,657 34
Balance, . . . . .		<hr/> <hr/>
		\$3 66

METROPOLITAN PARKS EXPENSE FUND.

Balance Jan. 1, 1905, . . . . . \$54,403 56  
 Receipts, 1905, . . . . . 87,461 75  


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 \$141,865 31

*Expenditures.*

General expense:—		
Preparing statement of fines, . . . . .	\$10 00	
	<hr/>	\$10 00
Blue Hills Reservation:—		
Repairs to and moving buildings, . . . . .	\$4,408 12	
	<hr/>	4,408 12
Middlesex Fells Reservation:—		
Motor bicycles, . . . . .	\$476 60	
Animals, . . . . .	199 66	
Repairs on stone crusher, etc., . . . . .	162 51	
Telephone, . . . . .	41 46	
Supplies, . . . . .	36 88	
Water rates, . . . . .	22 00	
Electric light fixtures, headquarters, . . . . .	15 34	
Repairs to buildings, . . . . .	9 80	
Express, . . . . .	9 30	
Miscellaneous, . . . . .	46 58	
	<hr/>	1,020 13
Revere Beach Reservation:—		
Bath-house:—		
Pay rolls, . . . . .	\$16,430 68	
Laundry machinery, . . . . .	6,003 75	
Lighting, . . . . .	1,888 42	
Bathing suits, . . . . .	1,465 34	
Coal, . . . . .	1,170 00	
Lumber, . . . . .	426 58	
Engine room supplies, . . . . .	425 67	
Towels, . . . . .	337 50	
Supplies, . . . . .	291 62	
Ice, . . . . .	266 25	
Soap, etc., . . . . .	216 16	
Repairs, . . . . .	205 98	
Tickets, . . . . .	154 35	
Medicines and attendance, . . . . .	143 01	
Hardware, . . . . .	137 80	
Water rates, . . . . .	99 10	
Key bands and rings, . . . . .	93 47	
	<hr/>	
<i>Amounts carried forward,</i> . . . . .	\$29,755 68	<hr/> <hr/>
		\$5,438 25
		\$141,865 31

<i>Amounts brought forward,</i>	\$29,755 68	\$5,438 25	\$141,865 31
<i>Bath-house — Con.</i>			
Disinfectant, . . . . .	88 50		
Findings, . . . . .	73 01		
Caps, . . . . .	72 75		
Paint, . . . . .	68 72		
Plumbing, . . . . .	67 00		
Castors and rubbers, . . . . .	64 72		
Brass bathing checks, . . . . .	54 00		
Hose, . . . . .	49 75		
Telephones, . . . . .	47 54		
Furnishings, . . . . .	36 50		
Stockings, . . . . .	27 50		
Pointing, . . . . .	25 85		
Stationery, . . . . .	14 62		
Brass door kicks, . . . . .	13 50		
Clock, . . . . .	6 50		
Miscellaneous, . . . . .	36 15		
	<hr/>	\$30,502 29	
Horse, . . . . .		275 00	
Motor for boat, . . . . .		246 00	
Dory, oars, etc., . . . . .		92 00	
Lumber, . . . . .		24 31	
Life buoys, . . . . .		6 41	
		<hr/>	31,146 01
<i>Stony Brook Reservation:—</i>			
Repairs to buildings, . . . . .	\$61 08		
Water rates, . . . . .	42 00		
	<hr/>		103 08
<i>Beaver Brook Reservation:—</i>			
Repairs, superintendent's house, . . . . .	\$136 32		
	<hr/>		136 32
<i>Hemlock Gorge Reservation:—</i>			
Sewer connection, . . . . .	\$37 96		
Water rates, . . . . .	15 37		
	<hr/>		53 33
<i>Charles River Reservation:—</i>			
<i>Riverside Section:—</i>			
Fence, Quinnobequin Road, . . . . .	\$428 00		
Emergency boats, . . . . .	371 90		
Bath-houses and sanitary, . . . . .	363 89		
Labor, . . . . .	301 13		
Rent, superintendent's house, . . . . .	285 00		
Forest Grove, repairs and improvement, . . . . .	152 05		
Shrubs, . . . . .	121 49		
Planting, . . . . .	93 75		
Seats, . . . . .	81 93		
Typewriter, . . . . .	80 00		
Stony Brook improvement, . . . . .	66 70		
Water rates, . . . . .	53 73		
Repairs, . . . . .	37 51		
	<hr/>		2,437 08
<i>Speedway Section:—</i>			
Horse, . . . . .	\$350 00		
Tool house, . . . . .	325 00		
Street roller, . . . . .	170 00		
Advertising sale of buildings, . . . . .	6 00		
	<hr/>		551 00
<i>Mystic River Reservation:—</i>			
Repairs to buildings, . . . . .	\$203 12		
Plumbing, . . . . .	60 00		
Miscellaneous labor, . . . . .	33 75		
Water rates, . . . . .	31 00		
Advertising sale of buildings, . . . . .	10 50		
	<hr/>		338 37
<i>Amounts carried forward,</i>		\$40,503 44	\$141,865 31

<i>Amounts brought forward,</i>		\$40,503 44	\$141,885 31
<i>Lynn Shore Reservation: —</i>			
Police signal boxes, . . . . .		\$300 00	
Cleaning beach, . . . . .		54 00	
Scraping fence, . . . . .		41 00	
Advertising sale of buildings, . . . . .		8 25	
Miscellaneous, . . . . .		3 00	
		<hr/>	406 25
<i>Winthrop Shore Reservation: —</i>			
Pipe, . . . . .		\$7 54	
Lead, . . . . .		7 00	
		<hr/>	14 54
<i>Blue Hills Parkway: —</i>			
Cement lined pipe, . . . . .		\$279 29	
		<hr/>	279 29
<i>Middlesex Fells Parkway: —</i>			
Loam, . . . . .		\$225 00	
Repairs to office, . . . . .		46 37	
Commission, sale of Chadwick house, . . . . .		25 00	
		<hr/>	296 37
<i>Mystic Valley Parkway: —</i>			
Wagon, . . . . .		\$120 00	
Geese, . . . . .		10 00	
Water rates, . . . . .		8 50	
		<hr/>	138 50
<i>Revere Beach Parkway: —</i>			
Watering cart, . . . . .		\$352 45	
Planting, . . . . .		307 50	
Fence, . . . . .		153 63	
Repairs, buildings, . . . . .		133 38	
Lawn mower, . . . . .		90 00	
Water rates, . . . . .		18 00	
		<hr/>	1,054 96
<i>Neponset River Parkway: —</i>			
Grading of playground, . . . . .		\$314 00	
Water rates, . . . . .		12 00	
		<hr/>	326 00
<i>Nahant Beach Parkway: —</i>			
<i>Bath-house: —</i>			
Pay rolls, . . . . .	\$3,141 15		
Bathing suits, . . . . .	2,477 00		
Paint, . . . . .	294 01		
Lighting, . . . . .	162 64		
Gasolene, . . . . .	55 24		
Telephones, . . . . .	50 38		
Medicines and attendance, . . . . .	35 00		
Coal, . . . . .	35 00		
Galvanized wire, . . . . .	31 25		
Lumber, . . . . .	27 20		
Hardware, . . . . .	16 21		
Supplies, . . . . .	14 69		
Ice, . . . . .	12 37		
Mirrors, . . . . .	5 40		
Express, . . . . .	4 40		
Stationery, . . . . .	3 25		
	<hr/>	\$6,365 19	
Bulkhead, . . . . .		444 43	
Police signal system, . . . . .		335 00	
Shelters, . . . . .		144 80	
Railroad ties, . . . . .		104 79	
Plan for bath-houses, Short Beach, . . . . .		75 00	
Labor, . . . . .		16 00	
		<hr/>	7,485 21
<i>Amounts carried forward,</i>		\$50,504 56	\$141,885 31



<i>Amounts brought forward,</i>		\$50,504 56	\$141,865 31
Wellington Bridge:—			
Repairs to bridge house, . . . . .	828 46		828 46
Nantasket Beach Reservation:—			
Bath-house:—			
Pay rolls, . . . . .	\$4,589 44		
Coal, . . . . .	1,221 00		
Water rates, . . . . .	387 21		
Paint, . . . . .	309 48		
Engine room supplies, . . . . .	74 84		
Lighting, . . . . .	67 74		
Towels, . . . . .	60 73		
Ice, . . . . .	52 30		
Soap, . . . . .	51 68		
Tickets, . . . . .	47 40		
Stockings, . . . . .	41 25		
Bathing suits, . . . . .	25 51		
Rubbish barrels, . . . . .	22 20		
Medicines and attendance, . . . . .	21 72		
Caps, . . . . .	21 00		
Telephones, . . . . .	20 25		
Hose, . . . . .	18 10		
Findings, . . . . .	17 00		
Laundry, . . . . .	12 48		
Supplies, . . . . .	10 57		
Hardware, . . . . .	6 30		
Stationery, . . . . .	5 30		
Hair brushes, . . . . .	4 50		
Repairs, . . . . .	3 50		
Miscellaneous, . . . . .	30 18		
		\$7,111 70	
Repairs and alterations to buildings, . . . . .	6,767 19		
Sanitary, . . . . .	4,757 36		
Loam and grading, . . . . .	4,878 20		
Bulkhead, . . . . .	1,493 67		
Dormitory supplies, . . . . .	366 16		
Labor, . . . . .	297 50		
Engineering:—			
Pay rolls, . . . . .	\$165 67		
Expenses, . . . . .	50		
		166 47	
Landscape Architects:—			
Services, . . . . .	\$137 34		
Expenses, . . . . .	5 88		
		143 22	
Horse, . . . . .	137 50		
Fire extinguishers, . . . . .	134 50		
Repairs, Nantasket Avenue, . . . . .	117 00		
Fire escapes, . . . . .	98 05		
Plumbing, . . . . .	90 19		
Cesspool, . . . . .	73 84		
Pipe privilege, . . . . .	5 00		
Miscellaneous, . . . . .	7 39		
		36,644 84	
			77,177 86
Balance in hands of State Treasurer, . . . . .			\$64,687 45

METROPOLITAN PARKS TRUST FUND.

Balance Jan. 1, 1906, . . . . . \$89 74



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APPENDIX.

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# PROCEEDINGS OF APPORTIONMENT COMMISSION.

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## GENERAL APPORTIONMENT, UNDER CHAPTER 419 OF THE ACTS OF THE LEGISLATURE FOR THE YEAR 1899.

### COMMONWEALTH OF MASSACHUSETTS.

SUFFOLK COUNTY.

SUPREME JUDICIAL COURT.

IN EQUITY.

In the matter of the petition of William B. de las Casas *et al.*, Metropolitan Park Commissioners, for appointment of commissioners to determine payments by cities and towns under Acts of 1899, chapter 419.

#### PETITION.

Respectfully represent William B. de las Casas, Edwin B. Haskell, Edwin U. Curtis, David N. Skillings and Ellerton P. Whitney, your petitioners : —

That they constitute the Board of Metropolitan Park Commissioners, duly established under and by virtue of an act of the Legislature of Massachusetts, entitled “ An Act to establish a Metropolitan Park Commission,” being chapter 407 of the acts passed in the year A.D. 1893, and acting under said act and acts in amendment thereof and in addition thereto.

That in and by section 1 of chapter 419 of the Acts of the Legislature of the year 1899 (a copy of which, together with a copy of section 2 of said last-mentioned act, is hereto annexed, marked “ Exhibit A ”) it is provided that, in order to determine the proportionate sums annually to be paid into the treasury of the Commonwealth by the various cities and towns within the Metropolitan Parks District, beginning with the first day of January in the year 1905, and continuing until the first day of January in the year in which a new award is made, as therein provided, to meet the interest and sinking fund requirements therein provided for, and to provide the amount required to meet the expenses of said Board, and of the care, maintenance and operation of the parks, reservations, boulevards and other works acquired, cared for and controlled by said Board, as therein provided, there shall be three



commissioners appointed for that purpose by this honorable court, on petition of this Board.

That for the purpose of carrying out the provisions of said acts it is necessary and expedient that said commissioners be appointed by the court as aforesaid.

They therefore pray that after such notice as this honorable court shall order, if any, there may be three commissioners appointed in the manner and for the purposes, and with all the rights, powers, privileges, duties and obligations in said act of 1899 mentioned or referred to.

And for greater certainty in all matters and things connected with this petition and the subject-matter thereof, your petitioners crave leave to refer to the Acts of 1893, chapter 407, and all acts in amendment thereof and in addition thereto.

WILLIAM B. DE LAS CASAS,  
EDWIN B. HASKELL,  
EDWIN U. CURTIS,  
DAVID N. SKILLINGS,  
ELLERTON P. WHITNEY,

*Board of Metropolitan Park Commissioners*

ARTHUR W. DEGOOSH,

*Assistant Attorney-General, of Counsel.*

#### EXHIBIT A.

[ST. 1899, CHAPTER 419.]

SECTION 1. In the year nineteen hundred and in every fifth year thereafter the supreme judicial court in equity, on application of the metropolitan park commission or of the attorney-general, or of any city or town of the metropolitan parks district by its attorney, and after such notice as the said court may order to each city and town of that district, shall appoint three commissioners, neither of whom shall be a resident of any city or town in said district, who shall, after such notice and hearing as they deem sufficient and in such manner as they deem just and equitable, determine and make award of the proportions in which each of the cities and towns of said district shall annually pay money into the treasury of the Commonwealth, beginning with the first day of January of the year in which such commissioners are required to be appointed, until the first day of January of the year in which a new award is made hereunder, to provide the amount for that year as estimated by the treasurer of the Commonwealth to meet the interest and sinking fund requirements of the appropriations and loans authorized by chapter four hundred and seven of the acts of the year eighteen hundred and ninety-three, chapter two hundred and eighty-eight of the acts of the year eighteen hundred and ninety-four, chapter three hundred and five of the acts of

the year eighteen hundred and ninety-five, and all acts in addition thereto and in amendment thereof, and the amount required to meet the expenses for that year of said board of metropolitan park commissioners, and of the care, maintenance and operation for that year of the parks, reservations, boulevards and other works, acquired, cared for or controlled by said board under said acts, as annually authorized by the general court, and the deficiency, if any, in the estimates and payments for the preceding year as found by said treasurer, and shall return their award thus determined into said court: *provided, however*, that the commissioners shall fix and return the proportion to be paid by the city of Boston for each year of the first of said terms at fifty per cent. Every such award when accepted by said court shall be a final and conclusive adjudication for the term for which it is made, of all matters referred to the commissioners, and shall be binding upon all parties.

SECTION 2. The treasurer shall in the year nineteen hundred and in each year thereafter estimate the several amounts required for that year from each city and town of said district, in accordance with said award, to provide the entire amount needed to meet the interest and sinking fund requirements of the appropriations and loans authorized by said chapter four hundred and seven of the acts of the year eighteen hundred and ninety-three, and acts in addition thereto and in amendment thereof, and to meet the expenses for that year of said metropolitan park commission incurred under said acts, and of the care, maintenance and operation of the parks, reservations and works acquired, cared for and controlled by said board under said acts, and the deficiency in the estimates and payments for these purposes for the previous year; and the treasurer shall also in the same manner estimate the several amounts required for that year from each city and town of said district, to provide one-half of the entire amount needed to meet the interest and sinking fund requirements of the appropriations and loans authorized by chapter two hundred and eighty-eight of the acts of the year eighteen hundred and ninety-four, and acts in addition thereto and in amendment thereof, and one-half of the expenses for that year of said metropolitan park commission under said acts, and of the care, maintenance and operation of the roads, boulevards and other works acquired, cared for and controlled by said board under said acts, and one-half of the deficiency in the estimates and payments under said acts for these purposes for the preceding year, and shall include the several amounts thus estimated to be needed each year from each city and town of said district in the sum to be paid by each as its state tax for that year, and shall charge the remaining one-half of the entire amount required for that year for interest, sinking fund requirements, and for expenses and deficiency, as aforesaid, under said chapter two hundred and eighty-eight of the acts of the year eighteen hundred and ninety-four to the Commonwealth, and shall include the same in the annual state tax for that year; and the amounts thus required in each year of the several cities and towns of said district and of the Commonwealth shall be paid by each into the treasury of the Commonwealth at the time required for the payment and as a part of the state tax of each for that year.

## COMMONWEALTH OF MASSACHUSETTS.

SUFFOLK, SS.

SUPREME JUDICIAL COURT.

IN EQUITY.

In the matter of the petition of William B. de las Casas *et al.*, Metropolitan Park Commissioners, for the appointment of commissioners to determine payments by cities and towns under Acts of 1899, chapter 419.

## DECREE.

And now, upon the above-entitled petition, it appearing to the court that due notice thereof was given to all cities and towns, respondents, according to the order of the court, and after due hearing thereof, no person objecting, it is ordered that Arthur P. Rugg of Worcester, James F. Jackson of Fall River and John J. Flaherty of Gloucester be and they are hereby appointed commissioners under section 1 of chapter 419 of the Acts of the year 1899, to determine and make award of the proportions in which each of the cities and towns of said district shall annually pay money into the treasury of the Commonwealth, beginning with the first day of January in the year 1905, until the first day of January of the year in which a new award is made as provided for by said act, to provide the amount for each of said years as estimated by the Treasurer of the Commonwealth to meet the interest and sinking fund requirements therein provided for, and to provide the amount required to meet the expenses of said Board of Metropolitan Park Commissioners, and of the care, maintenance and operation of the parks, reservations, boulevards and other works acquired, cared for and controlled by said Board as therein provided, and the deficiency, if any, in the estimates and payments for the preceding year as found by said Treasurer; and to do and perform all the other duties prescribed for them by said act and all other acts of the Legislature imposing powers and duties upon said commissioners, and to exercise all the powers thereby and by law reposed upon the said commissioners by any and all acts of the Legislature.

By the court,

WALTER F. FREDERICK,

*Assistant Clerk.*

FEB. 21, 1905.

## COMMONWEALTH OF MASSACHUSETTS.

SUFFOLK, ss.

SUPREME JUDICIAL COURT.  
No. 9159.

IN EQUITY.

William B. de las Casas *et al.*, petitioners, under Acts of 1899, chapter 419.

REPORT OF THE DETERMINATION AND AWARD OF COMMISSIONERS  
FOR APPORTIONMENT.

The undersigned, Arthur P. Rugg, James F. Jackson and John J. Flaherty, duly appointed commissioners in the above cause, to determine and make award of the proportions in which each of the cities and towns in the Metropolitan Parks District shall annually pay money into the treasury of the Commonwealth, as more fully appears in the decree, have attended to their duties, and make the following report of their determination and award.

The commissioners met on March 3, 1905, appointed a time and place for hearing all parties interested in the matters submitted to their determination, and gave due notice thereof. The notice, with return of service, is filed herewith. Hearings were held at Boston on the sixteenth day of March, and by adjournment upon the twenty-third, twenty-fourth, twenty-fifth and twenty-sixth days of May, and upon the fourteenth, fifteenth, sixteenth and nineteenth days of June, 1905. The Attorney-General, for the Commonwealth and the petitioners, and all the cities and towns in the Metropolitan Parks District, with the exception of Chelsea and Dover, by their representatives, appeared at the hearings, and presented such evidence, briefs and arguments as they desired, and they and all other persons interested have been fully heard. The commissioners have visited such of the parks, reservations and boulevards under the control of the Metropolitan Park Commission, and such of the local parks of the several municipalities, as they believed necessary, in order to properly perform their duties, or as they have been especially requested to visit. The views were taken on the tenth, eleventh and twentieth days of May, and the twenty-third, twenty-fourth and twenty-eighth days of June. Further meetings were held on the thirty-first day of May, the nineteenth and twenty-ninth days of June, the seventeenth day of July and the second and thirtieth days of August.

*Parks.*

By decrees of this court in 1894, George F. Richardson, Charles W. Clifford and Hiram P. Harriman were appointed commissioners for apportionment, under the Metropolitan Parks Acts.



These commissioners made an elaborate report of award, concluding with a schedule of proportions of contribution to be made by each municipality, which was the result of combining percentages based upon population and valuation, with computations of special benefits determined by them to have been received by the several municipalities. This award was confirmed by the court, but never became operative, by reason of section 4, chapter 550, Acts of 1896. In 1900 Charles Francis Adams, Thomas M. Stetson and John C. Hammond were appointed commissioners for apportionment, under chapter 419, Acts of 1899, and made their award, which was approved by the court. The report of these commissioners states that they rejected population and special park betterments, and adopted valuation as the basis of their determination, made allowance for local contributions to parks, and modified the result by taking into consideration the wealth of the different municipalities, dividing them into three classes: I., those whose valuation was less than \$1,000 per capita; II., those in which it was between \$1,000 and \$2,000; and III., those in excess of \$2,000; and deducted 25 per cent. of the amount which would otherwise have fallen upon the municipalities in Class I., and added it to those in Class III. This apportionment has been in force. The theories upon which these awards were made were supported in reports by vigorous discussions from the eminent lawyers on each commission.

It is apparent from this review that no special rule has so commended itself to previous commissioners as to have become a precedent of binding or even strongly persuasive authority. Moreover, for the first time the mandate of the statute absolutely fixing the contribution of Boston at 50 per cent. is no longer operative. It becomes the duty of the present commissioners to determine the proportions of contribution from all the municipalities, Boston as well as the other cities and towns interested in the apportionment, "in such manner as they deem just and equitable," without legislative limitation upon the exercise of their sound judgment. This fact presents the problem in a new light.

The question lying at the threshold of the inquiry is, whether any arbitrary percentage of contribution ought to be fixed for Boston. Boston has made a large expenditure for parks on its own account, and has established and maintains a noble park system, which is necessarily wholly within its own limits. This fact is urged as the decisive reason for some special concession. But other municipalities in the district have established park systems, which in area and cost and comparison to density of population are proportionately at least as much entitled to a special conces-



sion as is Boston. Boston's *per capita* valuation is the largest of all the cities in the district, and larger than that of most of the towns. In proportion of net debt to valuation it stands sixth among the cities in the district, while its tax rate has for several consecutive years been lower than that of any other city in the district. It would fall in the third or wealthy class of municipalities established by the last commissioners for apportionment. In density of population, which is one of the tests by which to gauge the need for parks, it is third in the district; or, if its large suburban districts of Brighton, Dorchester and West Roxbury are omitted, it has far the greatest density of population to be found in the district. While it is true that its local parks are open to the general public and are of appreciable special advantage to Brookline, their existence does not reduce to the level of many of the towns of the district its proportionate need for the broader areas of the Metropolitan Parks System. The gross expense incurred in this regard is probably materially reduced by the assessments collected of neighboring real estate, and there must be a considerable additional revenue from increased valuations. Moreover, the purpose of the establishment of a Metropolitan Parks System appears to have been not to furnish local breathing or recreation places in particular cities or towns, but to take into State preservation such commanding features of great natural beauty as, by reason of location and extent, lay beyond the confines of ordinary municipal acquirement. The policy of the Metropolitan Park Commission, in its takings, has been in pursuance of this purpose. The various municipalities are left free to establish such local park systems as their wealth, tastes and endowments of nature make wise; while the takings of the Metropolitan Park Commission have been of tracts of land forming particular park units, but lying in most instances within the territory of two or more municipalities. No theory for a special concession to Boston has been suggested, and the commissioners have been unable to formulate any which does not appear to be unjust and oppressive to other municipalities. Indeed, the brief for the city of Boston concedes the impracticability of establishing a just general principle for a concession, by asserting that its share of the contributions "must be fixed by some arbitrary percentage, and the rest of the sum to be raised divided among the other cities and towns by some rule;" or, again, that its percentage must be "a purely arbitrary one." The special limitation of Boston's contribution to 50 per cent., which has bound previous commissioners, was undoubtedly wholly arbitrary. It has been asserted, without contradiction, that this special limitation was placed in the statute

as the result of an understanding reached at the suggestion of the then mayor of Boston, that, if this limitation were inserted, no opposition would be made by the representatives of Boston to the enactment of the Metropolitan Parks Act. An arbitrary fixing for Boston of a smaller percentage, as an exception to a general rule, equitable for all other municipalities, fails to find a sufficient basis in the evidence presented. Taking into account all the circumstances which affect the situation, and giving due weight to all the considerations urged, the commissioners are unable to find ground, in justice or equity, for establishing a special concession to Boston; but they believe that whatever general rule may be found fairly applicable to the district as a whole should include Boston in its scope.

There has been no consensus of opinion as to the proper basis for apportionment, but various theories have been elaborated by the able counsel who have represented the several municipalities. The general proposition is that the commissioners may adopt any rule of apportionment, whether simple or complicated, which in the exercise of a reasonable discretion seems to best accomplish what is just and equitable.

It has been urged that the apportionment should be according to the special benefits received by the several cities and towns from the acquisition and maintenance of the various park reservations. No evidence was offered upon which to found an opinion as to the amount or the existence of such special benefits. No statistics were presented showing where the people who use the parks live or come from. It did not appear that in any locality there had been any appreciable increase in real estate values due to this cause. The view afforded the commissioners no proof of such benefits. Some municipalities, in which were large areas of park reservations, claimed that the exemption of this property from taxation had wrought them harm; others, that the existence of the reservation brought large crowds of noisy and undesirable persons from the congested centres of population, especially on holidays and summer evenings, within their otherwise quiet and orderly territory, causing annoyance to their residents and expense for police protection. No city or town admitted any special benefit from the presence of a reservation within its borders. The commissioners have endeavored to ascertain whether, and to what extent, such special benefits exist; but are convinced that data sufficient to warrant a satisfactory conclusion upon this point are wanting, and in the nature of things must continue to be beyond reach for the present. Therefore, the special benefit theory of apportionment has been rejected.

Some municipalities urged that population should be adopted as the basis of apportionment. The commissioners have had tables prepared to show the result of such an apportionment, and have given them careful consideration. This theory is not generally recognized as the rule for the distribution of public burdens. It has few attractive features when considered abstractly, and when applied concretely to municipalities composing the Parks District, it does not work out satisfactory results. Its effect is to place a disproportionate burden upon the poor but populous communities, and to relieve from its just share the wealthy ones. As it does not appear to the commissioners just and equitable, they have declined to adopt it.

Density of population was also urged as the theory best adapted to the existing conditions. Tables have been prepared showing the result of an apportionment upon this basis. The argument in its support is ingenious and plausible, as the necessity for park reservations must exist largely in proportion to the number of people dwelling in any restricted area. It is open to many of the objections which apply to the population theory, and when used as the sole rule for apportionment, it does not, in the opinion of the commissioners, work out equitable results.

It has been strongly argued that the rule of apportionment and classification of cities and towns according to wealth, adopted by the commissioners of 1900, should be followed. No one can read the final full report of the doings of these commissioners without recognizing the important part which the limitation to 50 per cent. upon Boston's contribution sustained in supporting the theory of apportionment then adopted, and in furnishing the groundwork for justifying the division of these municipalities into the three classes according to the *per capita* valuation. Essentially, it was in the distribution among the other cities and towns of the 12 or 13 per cent. which under the general valuation rule adopted by the commission would have been assessed upon Boston but for the statutory limitation, that the additional burdens were placed upon certain wealthier municipalities. The fact that this amount was necessarily to be taken from Boston, and that Boston could not be affected by the classification according to *per capita* valuation, made it possible to avoid some unsatisfactory results which might have been otherwise reached in following out this theory of apportionment. *Per capita* valuation, although an important, is not an exact, test of municipal wealth; the ratio of indebtedness to valuation, and tax rates, are significant considerations in determining the question. A low tax rate, small ratio of indebtedness to valuation, and large *per capita* valuation, or any of them, may be indicative



in part of wise municipal administration through a series of years. Laws ought not to be so executed, nor the discretion of tribunals so exercised, as to discourage sagacity and thrift in the management of civic affairs. Moreover, any classification of municipalities according to wealth must always be arbitrary, and not based upon a general rule of continuing or wide application. The same is true of the amount of deduction to be made from the poorer towns and addition to wealthier ones. While the action of the commissioners of 1900 may have abundant justification in the statutory limitation arbitrarily imposed upon Boston, making it desirable that the inequalities of burdens thus thrown upon the poorer communities be lightened, the present commissioners conceive that, under the free conditions now surrounding the problem, it is not equitable to adopt classifications dependent upon their individual notions, and not founded upon a generally recognized principle. Any arbitrary discriminations between the contributions of different municipalities is quite as strongly warranted in behalf of some of the fringe towns of the district, included in it solely for geographical considerations, as for any other reason.

The commissioners have had prepared tables of percentages based upon valuation, one of real, one of personal, and a third of both real and personal, property, upon population and upon density of population, and have studied the results so obtained, both independently and in various combinations. They have investigated the history of the Metropolitan Parks System, and have considered the park reservations from a geographical standpoint, from that of local contribution to and appropriations for parks, and from that of ability to meet the expenditure. They have formulated, discussed and considered other rules than those herein enumerated. "The basis and method of apportionment should be simple, definite, easily understood and of familiar application." (170 Mass. 117.) Novel conceptions as to the distribution of this taxation should not be formulated and approved, in preference to general rules which have stood the test of experience, merely because a wide discretion is conferred upon the commissioners. Unless justice will be wrought, it is wise to keep within the ancient landmarks of taxation. The distribution of public burdens according to property valuation, including both real and personal, is the policy of this Commonwealth, approved by long usage. As applied to all the municipalities affected by this apportionment, and tested by all the schedules mentioned and all the arguments presented, the commissioners believe that this principle of apportionment on the whole is the nearest approach to justice and equity. It is, therefore, adopted. It is singularly appropriate to the present apportionment, for the

reason that the Metropolitan Parks District is a new political entity, established for a specific, definite purpose, the territorial limits of which were based upon geographical and social considerations. The district was created to preserve for all time for the use of a crowded population the open areas in which the beauties of nature can best be enjoyed. In the last analysis, this is the most permanent and enduring form of public improvement. These reservations will never be outgrown, worn out or discarded by the progress of civilization. They will continue to be an increasingly valuable asset of the district as a whole, as long as it continues to be a centre of commercial, financial, manufacturing and educational activity, and add to the opportunities for pleasurable and wholesome living upon every dwelling site within its borders. Thus the advantages of the reservations are not so essentially present and local as lasting and general. Present and local considerations, which may turn out to be temporary and fleeting, are therefore deserving less weight in the apportionment of this than of most public charges.

It has been urged that deductions from whatever general basis might be adopted should be made in favor of certain municipalities, for various reasons. Several cities and towns have established local park systems, and some have expended large sums for this purpose; and it has been argued that special allowance should be made, on this account, in the percentages of contributions to be framed. The view taken of these local parks, as well as the other evidence and the arguments, has failed to convince the commissioners that such deductions ought to be made in any case. Generally, these park expenditures have been made to meet local necessities, are of great local benefit, and have not in a calculable degree lessened the expense of or necessity for the Metropolitan Parks System. All parks, whether established by the municipality or the district, are open to the whole public; and, as one community becomes a centre of trade or other attraction, its parks will be more generally used. Nevertheless, the paramount reason for expenditures for parks by individual municipalities has been the desire for local improvement, and the extent of such expenditures has been largely in proportion to the wealth or density of population of the respective cities and towns. An expenditure of this sort is good municipal investment, as the local parks are ordinarily so located as to increase real estate values in the immediate neighborhood. At first view, the Lynn woods seems to be an exception. But, while this reservation is metropolitan in size, character, beauty and location, it also serves an important use in conserving the purity of the sources of Lynn's water supply. Moreover, Lynn, with its large and rapidly increasing population, is a close approach



to being in the enjoyment of special benefits from the Metropolitan Parks System, by reason of its proximity to the Revere Beach Reservation. Furthermore, the adoption of valuation as the basis of apportionment gives to each municipality the benefit or credit for its investment in parks to the extent that such property is exempt from taxation and valuation. This is all the concession which the commissioners think can, in view of all the circumstances, equitably be made.

Some towns, in which are large areas of Metropolitan Park Reservations, have urged that the removal of this land from local taxation was a consideration entitling it to a special deduction. This argument is wholly out of harmony with the theory of exemption from taxation of property devoted to public uses, which is a cardinal principle of the general tax scheme that has long prevailed in this Commonwealth. No evidence or argument for a special deduction has commended itself to the commissioners as on the whole likely to result in ultimate justice.

It has been strenuously urged that population should be adopted as the rule of apportionment of expense of park maintenance, on the ground that maintenance is based on use, and use on population, and that those who use should pay for this luxury of parks. From the view-point of civic foresight and administrative wisdom, parks are quite as necessary as the more obviously imperative demands for municipal expenditure. Use of parks is probably not directly proportionate to population. The opportunity of a given population for leisure is quite as important upon this issue as the number of people within a specific area. A substantial part of the maintenance expenditure is for purposes not directly dependent upon use of the parks, but for their permanent development and preservation. Therefore, the argument does not seem to the commissioners of sufficient weight to cause the abandonment of the valuation basis, which has all the grounds of support, when viewed with reference to this item of expense, that it possesses as the general rule.

It appears, from information furnished by the State Treasurer, that the Metropolitan Parks Loan, issued in pursuance of the several Park Statutes, exclusive of the Boulevards and Nantasket Beach and the Charles River Basin loans and of incidental receipts, amounted, on Jan. 1, 1905, to \$7,620,000. This amount is likely to be increased \$300,000 annually until 1907, with an additional increase of \$70,000 in 1905 for the Nahant Bath-house. The estimated requirements for 1905 for sinking funds were \$102,026.99, for interest \$243,744.99, and for maintenance \$186,370.49, making a total of \$532,142.37.

Having fully considered the evidence and arguments and all circumstances and conditions, the commissioners deem it just and equitable, and therefore determine and make award of the proportions in which each of the cities and towns in the Metropolitan Parks District shall annually pay money into the treasury of the Commonwealth during the term of this award, to provide the amount for each year, as estimated by the Treasurer of the Commonwealth, to meet the interest and sinking fund requirements of the appropriations and loans authorized by chapter 407, Acts of the year 1893, chapter 305, Acts of the year 1895, and all acts in addition thereto and in amendment thereof, except chapter 288, Acts of the year 1894, chapter 464, Acts of the year 1899, chapter 465, Acts of the year 1903, and all acts in amendment of and in addition to said three last-named acts, and the amount required for each year to meet the expenses of said Board of Metropolitan Park Commissioners, and of the care, maintenance and operation of the parks, reservations and other works acquired, cared for or controlled by said Board under said acts, except as aforesaid, and the deficiency, if any, in the estimates of payments for the preceding year as found by said Treasurer, and all other contributions required by law for Metropolitan Parks, except as herein otherwise provided, as shown by the percentages set against the names of said cities and towns respectively in the following Table A: —

TABLE A.

Boston, . . . . .	.62237	Hingham, . . . . .	.00244
Cambridge, . . . . .	.05405	Hull, . . . . .	.00214
Chelsea, . . . . .	.01203	Hyde Park, . . . . .	.00605
Everett, . . . . .	.01037	Milton, . . . . .	.01240
Lynn, . . . . .	.02733	Nahant, . . . . .	.00368
Malden, . . . . .	.01613	Needham, . . . . .	.00209
Medford, . . . . .	.01081	Revere, . . . . .	.00583
Melrose, . . . . .	.00772	Saugus, . . . . .	.00208
Newton, . . . . .	.03479	Stoneham, . . . . .	.00252
Quincy, . . . . .	.01165	Swampscott, . . . . .	.00531
Somerville, . . . . .	.02866	Wakefield, . . . . .	.00410
Waltham, . . . . .	.01136	Watertown, . . . . .	.00630
Woburn, . . . . .	.00556	Wellesley, . . . . .	.00585
Arlington, . . . . .	.00503	Weston, . . . . .	.00341
Belmont, . . . . .	.00306	Westwood, . . . . .	.00109
Braintree, . . . . .	.00258	Weymouth, . . . . .	.00347
Brookline, . . . . .	.04988	Winchester, . . . . .	.00532
Carlton, . . . . .	.00206	Winthrop, . . . . .	.00426
Dedham, . . . . .	.00566		
Dover, . . . . .	.00056		
			1.00000

*Boulevards.*

The advantages from the construction and maintenance of boulevards stand upon a somewhat different basis from parks. Highways have for many decades been regarded in this Commonwealth as proper foundation for the assessment of betterments. The benefits springing from them are tangible and appreciable. One-half the interest and sinking fund requirements and one-half of the expense of care and maintenance and one-half the office and running expenses of the Metropolitan Park Commissioners occasioned by roadways and boulevards are by the statute to be paid by the Commonwealth, and the other half by the cities and towns in the Metropolitan Parks District. The commissioners believe it fair, on an examination both of the effect of the distribution of the burden and of the history of the apportionment of the last commissioners, to apportion upon the municipalities in which the boulevards are constructed 25 per cent. of the half to be apportioned to the district (being  $12\frac{1}{2}$  per cent. of the total expense), and the remaining 75 per cent. (being  $37\frac{1}{2}$  per cent. of the entire amount) upon the district in proportion to valuation.

It appears, from a statement of the State Treasurer, that the Metropolitan Parks Loan, Series Two, being the Boulevard Loans, issued under the authority of the several Boulevard Statutes, amounted, on Jan. 1, 1905, to \$4,485,000, and that this amount is likely to be increased \$300,000 each year until and including 1907. The one-half of the Metropolitan Parks Loans, Series Two, to be paid for by the district, was on the same date \$2,242,500. The sinking fund requirement to be collected of the district for 1905 is estimated at \$28,605.48, the interest account at \$67,098.13 and the maintenance at \$44,802.96, making a total of \$140,506.57.

Having fully considered the evidence and arguments and all the circumstances and conditions attending the subject-matter, the commissioners deem it just and equitable, and therefore make award of the proportions in which each of the cities and towns in the Metropolitan Parks District shall annually pay money into the treasury of the Commonwealth during the term of this award, to provide the amount each year required by law to be assessed upon the district for said Boulevards and their maintenance under chapter 288, Acts of the year 1894, and all acts in amendment thereof and in addition thereto, as shown by the percentages set against the names of said cities and towns respectively in the following Table B:—

TABLE B.

Boston, . . . . .	.46716	Hingham, . . . . .	.00184
Cambridge, . . . . .	.04558	Hull, . . . . .	.00160
Chelsea, . . . . .	.02482	Hyde Park, . . . . .	.00618
Everett, . . . . .	.03986	Milton, . . . . .	.04158
Lynn, . . . . .	.02166	Nahant, . . . . .	.00822
Malden, . . . . .	.02936	Needham, . . . . .	.00156
Medford, . . . . .	.05678	Revere, . . . . .	.05432
Melrose, . . . . .	.00578	Saugus, . . . . .	.00156
Newton, . . . . .	.02610	Stoncham, . . . . .	.00188
Quincy, . . . . .	.02064	Swampscott, . . . . .	.00398
Somerville, . . . . .	.02994	Wakefield, . . . . .	.00308
Waltham, . . . . .	.00852	Watertown, . . . . .	.00472
Woburn, . . . . .	.00416	Wellesley, . . . . .	.00438
Arlington, . . . . .	.00378	Weston, . . . . .	.00256
Belmont, . . . . .	.00230	Westwood, . . . . .	.00082
Braintree, . . . . .	.00194	Weymouth, . . . . .	.00260
Brookline, . . . . .	.03740	Winchester, . . . . .	.02394
Canton, . . . . .	.00154	Winthrop, . . . . .	.00320
Dedham, . . . . .	.00424		
Dover, . . . . .	.00042		1.00000

The percentages in Table B apply only to the half of the Boulevard charges and expenses, which by law is to be paid by the district.

Under chapter 178 of the Acts of 1904, Boston paid \$360.05 per thousand of the State tax.

#### *Nantasket Beach.*

For the reasons hereinbefore stated, the commissioners believe that apportionment of the contributions to sinking fund, interest and maintenance for the Nantasket Beach Reservation should be made between the cities and towns in the Metropolitan Parks District and Cohasset in proportion to valuation.

It appears, from a statement of the State Treasurer, that the Nantasket Beach Loans amounted, on Jan. 1, 1905, to \$700,000. The sinking fund requirement for the year 1905 was estimated at \$8,332.29, the interest account at \$21,498.21 and maintenance at \$18,079.92, making a total of \$47,910.42. The commissioners, having fully considered the evidence and arguments and the attendant circumstances and conditions, deem it just and equitable, and therefore make award of the proportions in which each of the cities and towns in the Metropolitan Parks District, deeming and treating Cohasset as a part of the Metropolitan Parks District for this purpose, shall annually pay money into the treasury of the



Commonwealth during the term of this award, to provide the amount required each year under chapter 464, Acts of the year 1899, and all acts in amendment thereof and in addition thereto, as shown by the percentages set against the cities and towns in said district, in the following Table C:—

TABLE C.

Boston, . . . . .	.62009	Hingham, . . . . .	.00243
Cambridge, . . . . .	.05386	Hull, . . . . .	.00213
Chelsea, . . . . .	.01198	Hyde Park, . . . . .	.00603
Everett, . . . . .	.01033	Milton, . . . . .	.01236
Lynn, . . . . .	.02723	Nahant, . . . . .	.00366
Malden, . . . . .	.01607	Needham, . . . . .	.00208
Medford, . . . . .	.01077	Revere, . . . . .	.00580
Melrose, . . . . .	.00769	Saugus, . . . . .	.00207
Newton, . . . . .	.03467	Stoneham, . . . . .	.00251
Quincy, . . . . .	.01161	Swampscott, . . . . .	.00529
Somerville, . . . . .	.02855	Wakefield, . . . . .	.00409
Waltham, . . . . .	.01132	Watertown, . . . . .	.00628
Woburn, . . . . .	.00554	Wellesley, . . . . .	.00583
Arlington, . . . . .	.00501	Weston, . . . . .	.00340
Belmont, . . . . .	.00305	Westwood, . . . . .	.00109
Braintree, . . . . .	.00257	Weymouth, . . . . .	.00346
Brookline, . . . . .	.04970	Winchester, . . . . .	.00530
Canton, . . . . .	.00206	Winthrop, . . . . .	.00424
Cohasset, . . . . .	.00366		
Dedham, . . . . .	.00563		1.00000
Dover, . . . . .	.00056		

*The Charles River Dam. (Chapter 465, Acts of 1903.)*

This chapter is entitled “An Act to authorize the construction of a dam across the Charles River between the cities of Boston and Cambridge.” Section 9 provides that:—

The commissioners next appointed under the provisions of chapter four hundred and nineteen of the acts of the year eighteen hundred and ninety-nine, and amendments thereof, in apportioning the expenses of maintaining the metropolitan parks system shall include as part thereof the expense of maintenance incurred under the preceding sections of this act; shall also determine, as they shall deem just and equitable, what portion of the total amount expended for construction under sections three, four, five and six of this act shall be apportioned to the cities of Boston and Cambridge as the cost of removal of Craigie bridge and the construction of a suitable bridge in place thereof, and the remainder shall be considered and treated as part of the cost of construction of the metropolitan park system. The treasurer and receiver general shall determine the payments to be made each year by said cities, one-half by



each, to meet the interest and sinking fund requirements for the amounts apportioned to them as the cost of such bridge, and the same shall be paid by each city into the treasury of the Commonwealth as part of its state tax.

After arguments by counsel, the commissioners for apportionment interpreted this section to apply to them and to impose duties upon them. They therefore held hearings respecting the subject-matter of said chapter 465, of which due notice was given, and at which the Charles River Basin Commission, through its secretary and chief engineer, and all other parties interested, so far as they desired, were heard.

The undisputed evidence at these hearings showed that there had been no expense of maintenance incurred under sections 1 to 8, both inclusive; that the Charles River Basin Commission had let a contract for the construction of a portion of the dam between the cities of Boston and Cambridge, but that very substantial parts of the structure were omitted from this contract, such as the draw, the paving of the roadway and some other items, the cost of which would undoubtedly aggregate many thousands of dollars, and that no estimate of what expenses would be incurred in completing the structure for public use had been or could at the present time reasonably be made; that the prices for several distinct subject-matters in the contract for the dam were by quantities, which might vary materially from estimates, as the character of the river bottom and the soil in the vicinity disclosed itself in construction, and that this could be determined with certainty only as the work progressed; that the dredging and other work authorized by the last paragraph of section 4 was not only not done and not contracted for, but the Basin Commission was not then possessed of sufficient knowledge to enable it to determine the amount and character of dredging which ought to be done, or the extent of the other work required; that the construction of the marginal conduit authorized by section 5 upon the north side of the basin has not been begun nor contracted for, nor the expense of it estimated, and the construction of the marginal conduit upon the south side of the basin had been contracted for only for a distance of about 2,400 feet, and that the Basin Commission has not yet determined the length of this conduit, within the limits authorized by section 5, and hence no estimate of its expense was possible; that the taking of lands authorized by section 6 had not yet been completed, and it was obviously impossible to estimate the expense of takings and the damages which may be recovered therefor; that the additional dredging in the basin for deepening the channel to Bracket's Wharf, which may be required by the

War Department of the United States, had not been contracted for, nor the cost of it estimated; and that a considerable amount of filling, required in connection with the construction of the dam and the preservation of public health around the basin, had not been contracted for, nor any definite estimate of its cost made.

After careful consideration of the evidence and the arguments of counsel, the commissioners for apportionment are of the opinion that the work in connection with the Charles River Dam and Basin has not yet progressed far enough, and that sufficient facts are not now obtainable to enable them at the present time to make a just and equitable determination of the portion of the total amount expended for construction under sections 3, 4, 5 and 6 to be apportioned "to the cities of Boston and Cambridge as the cost of removal of Craigie Bridge and the construction of a suitable bridge in place thereof," and to make a just and equitable apportionment "of the cost of construction of the Metropolitan Park System," by considering and treating as a part thereof the remainder of the "total amount expended for construction under" said chapter 465.

They are also of the opinion that they cannot make an intelligent apportionment of the expense of maintaining the Metropolitan Parks System by including the expense of maintenance incurred under sections 1 and 8, both inclusive, inasmuch as no such expenses have been incurred, and the amount of them in connection with the character and use of the constructions would be special circumstances, to be given weight in an apportionment.

These conclusions were unanimously agreed to by the representatives of all persons taking part in the hearings, including the city solicitors of Boston and Cambridge and many other cities and towns in the Metropolitan Parks District, and they requested that the matter be left open for future consideration.

The commissioners for apportionment, therefore, report to the court that they have not included in the preceding portions of this report any part of the expense, either of construction or maintenance, authorized by chapter 465 of the laws of 1903; and that, in their opinion, the matter should be considered at some time in the future, when the necessary information may have become obtainable.

ARTHUR P. RUGG,  
JAMES F. JACKSON,  
JOHN J. FLAHERTY,

*Commissioners for Apportionment.*

## COMMONWEALTH OF MASSACHUSETTS.

SUFFOLK, ss.

SUPREME JUDICIAL COURT.  
No. 9159.

IN EQUITY.

In the matter of the petition of William B. de las Casas *et al.*, Metropolitan Park Commissioners, for appointment of commissioners to determine payments by cities and towns under Acts of 1899, chapter 419.

## DECREE ACCEPTING AWARD OF COMMISSIONERS.

This cause came on to be heard on motion of the petitioners for the acceptance of the award of the commissioners at this sitting, and was argued by counsel; and it appearing that notice of the motion of the petitioners for the acceptance of the award of the commissioners had been published in accordance with the order of the court, thereupon, upon consideration thereof, it is ordered, adjudged and decreed that the report of the commissioners, Arthur P. Rugg, James F. Jackson and John J. Flaherty, be and the same hereby is accepted.

By the court,

JOHN NOBLE,

*Clerk.*

Nov. 10, 1905.

WELLINGTON BRIDGE APPORTIONMENT, UNDER  
CHAPTER 491 OF THE ACTS OF THE LEGISLA-  
TURE FOR THE YEAR 1901.

## COMMONWEALTH OF MASSACHUSETTS.

SUFFOLK, ss.

SUPREME JUDICIAL COURT.

IN EQUITY

In the matter of the petition of William B. de las Casas *et al.*, Metropolitan Park Commissioners, for appointment of commissioners to determine payments by cities and towns under Acts of 1901, chapter 491.

## PETITION.

Respectfully represent William B. de las Casas, Edwin B. Haskell, Edwin U. Curtis, David N. Skillings and Ellerton P. Whitney, your petitioners: —

That they constitute the Board of Metropolitan Park Commissioners, duly established under and by virtue of an act of the



Legislature of Massachusetts, entitled "An Act to establish a Metropolitan Park Commission," being chapter 407 of the acts passed in the year A.D. 1893, and acting under said act and acts in amendment thereof and in addition thereto.

That by section 1 of chapter 491 of the Acts of 1901 (a copy of which act is hereto annexed, marked "Exhibit A") the Metropolitan Park Commission was required to build a bridge with a suitable draw and with suitable approaches across Mystic River, between the city of Somerville and the city of Medford, at or near the site of the so-called Middlesex Avenue bridge.

That by section 2 of said act it was provided that the cost of the bridge "shall not exceed the sum of two hundred thousand dollars, and shall be paid in the manner hereinafter provided, in part by such cities and towns in the county of Middlesex as shall be found to be specially benefited by the use of said bridge for highway purposes, and in part by the Metropolitan Parks District, to such extent as said district shall be found to be benefited by the use of the bridge for park purposes, and in the proportion to be determined by a special commission appointed as hereinafter provided."

That your petitioners have built the bridge, with a suitable draw and suitable approaches, upon plans approved by the county commissioners of Middlesex County, at a cost of less than the sum of \$200,000, as required by said act, and that said bridge and its approaches were completed on the seventh day of December, A.D. 1904.

That in and by sections 6 and 7 of said chapter 491 it is provided that, in order to determine which of said cities and towns in the county of Middlesex are specially benefited by the use of said bridge for highway purposes, and the extent of such benefit, and to what extent the Metropolitan Parks District by the use of said bridge for park purposes, and to determine in proportion to such benefits the part of the cost of said bridge and approaches to be paid by each of said cities and towns and by the Metropolitan Parks District, and in order to determine the proportion in which said cities and towns, or any of them, and said district shall bear the cost of the maintenance of said bridge, there shall be three commissioners appointed by this honorable court, upon petition of this Board.

That for the purpose of carrying out the provisions of said act it is necessary and expedient that said commissioners be appointed by the court, as aforesaid.

They therefore pray that after such notice as this honorable court

shall order, if any, there may be three commissioners appointed, in the manner and for the purposes, and with all the rights, powers, privileges, duties and obligations in said act of 1901 mentioned or referred to.

WILLIAM B. DE LAS CASAS,  
EDWIN B. HASKELL,  
EDWIN U. CURTIS,  
DAVID N. SKILLINGS,  
ELLERTON P. WHITNEY,

*Board of Metropolitan Park Commissioners.*

ARTHUR W. DEGOOSH,

*Assistant Attorney-General, of Counsel.*

EXHIBIT A.

[ACTS OF 1901, CHAPTER 491.]

AN ACT TO DIRECT THE METROPOLITAN PARK COMMISSION TO CONSTRUCT A BRIDGE OVER THE MYSTIC RIVER BETWEEN THE CITIES OF SOMERVILLE AND MEDFORD.

*Be it enacted, etc., as follows:*

SECTION 1. The metropolitan park commission shall build a bridge, with a suitable draw and with suitable approaches, across the Mystic river between the city of Somerville and the city of Medford, at or near the site of the so-called Middlesex Avenue bridge, subject to the provisions of chapter nineteen of the Public Statutes. The plans of said bridge shall be approved by the county commissioners of Middlesex county, and the bridge shall be constructed and maintained for the joint use of the highways of said cities and the metropolitan reservations, roads and boulevards along and near said river in said cities, and the said board shall maintain and operate the same for any purposes for which either the said highways or the said park roads may be used.

SECTION 2. The cost of the bridge and approaches thereto shall not exceed the sum of two hundred thousand dollars, and shall be paid in the manner hereinafter provided, in part by such cities and towns in the county of Middlesex as shall be found to be specially benefited by the use of said bridge for highway purposes, and in part by the metropolitan parks district, to such extent as said district shall be found to be benefited by the use of the bridge for park purposes, and in the proportion to be determined by a special commission appointed as hereinafter provided.

SECTION 3. For the purpose of carrying out the provisions of this act the said board shall have, in addition to the powers hereby conferred, the same powers and shall be subject to the same duties and liabilities in regard to said bridge as are provided in regard to roads and highways by chapter two hundred and eighty-eight of the acts of the year eighteen hundred and ninety-four and acts in addition thereto and in amendment



thereof, or by any other provisions of law applicable thereto, except as herein otherwise provided, and in addition thereto said board may remove the existing Middlesex Avenue bridge, so-called, or use any part thereof for the new bridge.

SECTION 4. The said board shall have authority to grant locations to street railways in and over said bridge, upon the same terms and conditions upon which it is now authorized to grant locations to street railways within the roads, boulevards, parks and reservations in its care and control, under the provisions of chapter four hundred and thirteen of the acts of the year nineteen hundred, and any moneys received from said grants shall be applied to the cost of or to the care and maintenance of the new bridge.

SECTION 5. To meet the expenses incurred under this act the treasurer and receiver-general is hereby authorized, with the approval of the governor and council, to issue scrip or certificates of indebtedness to an amount not exceeding two hundred thousand dollars, as an addition to the amounts already authorized under the provisions of chapter four hundred and seven of the acts of the year eighteen hundred and ninety-three and acts in addition thereto and in amendment thereof, and as part of the Metropolitan Parks Loan. Such scrip or certificates of indebtedness shall be issued as registered bonds, and shall bear interest at a rate not exceeding four per cent. per annum, payable semi-annually, on the first days of January and July of each year.

SECTION 6. The supreme judicial court sitting in equity shall, upon application of said board and after such notice as it may order, appoint three commissioners, who shall, after due notice and hearing, in such manner as they shall deem just and equitable, determine *which of said cities and towns in the county of Middlesex are especially benefited by the use of said bridge for highway purposes*, and the extent of such benefit, and to *what extent the metropolitan parks district is benefited by the use of said bridge for park purposes*, and shall further determine in proportion to such benefits the part of the cost of said bridge and approaches to be paid by each of said cities and towns and by the metropolitan parks district, and shall return their award into said court, and when the same has been accepted by said court it shall be a final adjudication of all matters herein referred to said commissioners, and shall be binding on all parties; and in like manner said commissioners shall determine and file their award as to the payment of the cost of maintenance of said bridge, and determine the proportion in which said cities and towns or any of them and said district shall bear the same.

SECTION 7. Upon the filing and acceptance of said awards the treasurer and receiver-general of the Commonwealth shall estimate and determine the amount to be paid in accordance with said award by each of said cities and towns as their proportion of the cost of said bridge, and shall include one-fifth part thereof with interest at the current rates in the sum charged to each of said cities and towns in the apportionment and assessment of its state tax for the succeeding five years, until the sum to be paid by such city or town has been fully paid. The sums thus paid by said cities and towns shall be credited and added to the Metropolitan

Parks Loan Sinking Fund In like manner the treasurer and receiver-general shall estimate and determine the amount to be paid in each year by any city or town according to the award of said commissioners for the care and maintenance of said bridge, and shall include the same in the annual state tax of such city or town, and the sums thus collected shall be credited to and paid into the funds available by the metropolitan park commission for the maintenance of said bridge, and may be expended by them for that purpose, in addition to any loans or appropriations authorized for park purposes.

SECTION 8. This act shall take effect upon its passage. [*Approved June 13, 1901.*]

COMMONWEALTH OF MASSACHUSETTS.

SUFFOLK, ss.

SUPREME JUDICIAL COURT.

IN EQUITY.

In the matter of the petition of William B. de las Casas and others, Metropolitan Park Commissioners, for the appointment of commissioners to determine payments by cities and towns under Acts of 1901, chapter 491.

DECREE.

And now, upon the above-entitled petition, it appearing to the court that due notice thereof was given to all cities and towns, respondents, according to the order of the court, and after due hearing thereof, no person objecting, it is ordered that Arthur P. Rugg of Worcester, James F. Jackson of Fall River and John J. Flaherty of Gloucester be and they hereby are appointed commissioners under section 6 of chapter 491 of the Acts of the year 1901, to determine which of the cities and towns in the county of Middlesex are specially benefited by the use of the bridge, which is the subject of said act, for highway purposes, and to what extent the Metropolitan Parks District is benefited by the use of the bridge for park purposes, determine and make award the proportions of the cost of said bridge and approaches which each shall pay, and also to determine and make award of the proportions in which each of said cities and towns shall pay the cost of maintenance of said bridge, and to do and perform all of the other duties prescribed for them by said act, and to exercise all the powers thereby and by law reposed upon the said commissioners as provided for by said act.

By the court,

WALTER F. FREDERICK,

*Assistant Clerk.*

## COMMONWEALTH OF MASSACHUSETTS.

SUFFOLK, ss.

SUPREME JUDICIAL COURT.  
No. 9158.

IN EQUITY.

William B. de las Casas *et al.*, petitioners, under chapter 491, Acts of 1901.

## REPORT OF THE DETERMINATION AND AWARD OF COMMISSIONERS.

The undersigned commissioners, Arthur P. Rugg, James F. Jackson and John J. Flaherty, duly appointed in the above cause to make a determination and award as to an apportionment of the cost of the construction and maintenance of the Wellington, or Middlesex Avenue, Bridge, built across the Mystic River between the cities of Somerville and Medford, under the provisions of chapter 491, Acts of 1901, have attended to their duties, and respectfully present the following report of their doings and of their determination and award.

After due notice given to all parties in interest, several hearings were held, at which opportunity was given to the petitioners and to all cities and towns and to all other persons interested in the matter to be fully heard, such hearings having been held at Boston on the sixteenth day of March, and twentieth, twenty-first, twenty-second, twenty-sixth and twenty-seventh days of April. Said notice, with the return of service thereon, is filed herewith. A view of this bridge and of the highways connecting therewith was taken. The commissioners also met for conference on the third days of March and May. After the submission of all the evidence and arguments which parties desired to present, and upon full consideration thereof, the commissioners make the following findings and award: —

1. They find that, under the authority conferred by chapter 187, Acts of 1869, a bridge for highway purposes alone was constructed, known as the Middlesex Avenue Bridge, which spanned the river at substantially the same place as the present bridge. Section 3, chapter 491, Acts of 1901, authorized the Metropolitan Park Commission to remove this old bridge, or use any part of it for the new bridge. The old was somewhat narrower than the new structure, and from age and use its strength and durability had become impaired. No street railway track had ever been laid upon it, and it was not strong enough, without extensive and expensive repairs, to bear street railway traffic. The Metropolitan Park Commission acted upon the authority conferred by section 3 of said chapter 491, and removed the old bridge, after using it until the new one was completed. The new bridge was constructed during the year



1903, at a total expense, including its approaches, of \$184,261.61. The annual expense of maintenance of the bridge has since been approximately \$2,661.

2. The commissioners are of the opinion and find that the history of the taking and removal of the Middlesex Avenue Bridge (section 3, chapter 491, Acts of 1901) and the building of this bridge, the type and dimensions of the structure, the uses now made of it and those which will in the future in all probability be made of it, the relation which it bears to the surrounding cities and towns and to the part of the Metropolitan Parks District lying north of Boston, all go to show that the benefits to be received from the bridge and its approaches, so far as such benefits may be measured, are shared in equal proportion by those who use and will use the bridge for the ordinary highway purposes, and by those who use and will use it in connection with travel to and from important park reservations within the Metropolitan Parks District. In accordance with these views, they determine that the Metropolitan Parks District is benefited by the use of said bridge for park purposes to the extent of one-half its cost for construction; and they apportion upon the Metropolitan Parks District one-half, or 50 per cent., of the expense of construction of the bridge with its approaches, and the other half upon the cities and towns hereinafter named, which determination is to their minds just and equitable.

3. They are of the opinion and find that the present and future uses of the Wellington Bridge for highway purposes are of special benefit to the cities of Somerville, Medford and Malden, and the towns of Stoneham and Reading. The view and the oral and written evidence conclusively prove that, besides the present uses of this highway, there will be an additional and very important use of it in connection with a proposed street railway service, for which provision has been made in the construction of the bridge and approaches, and for the inauguration of which steps have already been taken by companies which expect to perform this service. The value of such street railway facilities to the town of Stoneham, and in a smaller degree to the town of Reading, constitute in large part the basis for the finding that these towns are to receive special benefit from the new bridge. The cities of Somerville, Medford and Malden receive material benefit from the improved means of communication with each other, in the increased convenience for mutual business relations between these communities, and, especially in the case of the two cities last named, a direct benefit in the probably larger value of lands at present unoccupied.

Accordingly, the commissioners believe it to be just and equitable, and find that the extent of the special benefits received by these cities and towns are in proportion to the percentages which follow, and which represent the manner in which they apportion among them the one-half, or 50 per cent., of the cost of construction of this bridge and its approaches, not hereinbefore apportioned upon the Metropolitan Parks District:—

	Per Cent.
Somerville, . . . . .	12½
Medford, . . . . .	19
Malden, . . . . .	14
Stoneham, . . . . .	3½
Reading, . . . . .	1
	—
	50

The commissioners are unable to find, upon the evidence presented or from their own observation, any difference in the effect of the various uses of this highway upon the bridge and its approaches. The same considerations which govern their determination as to the division of the cost of the construction of the bridge and its approaches lead to the same conclusions as to the division of the cost of the maintenance of the bridge. Taking into consideration the present and prospective uses of said bridge, it is just and equitable, and they therefore in like manner, and for the reasons hereinbefore stated, determine the proportion in which said cities and towns and said Metropolitan Parks District shall bear the cost of maintenance of said bridge as follows:—

	Per Cent.
Somerville, . . . . .	12½
Medford, . . . . .	19
Malden, . . . . .	14
Stoneham, . . . . .	3½
Reading, . . . . .	1
Metropolitan Parks District, . . . . .	50
	—
	100

ARTHUR P. RUGG,  
JAMES F. JACKSON,  
JOHN J. FLAHERTY,  
*Commissioners.*



## COMMONWEALTH OF MASSACHUSETTS.

SUFFOLK, ss.

SUPREME JUDICIAL COURT.  
No. 9158.

IN EQUITY.

In the matter of the petition of William B. de las Casas *et al.*, Metropolitan Park Commissioners, for appointment of commissioners to determine payments by cities and towns under Acts of 1901, chapter 491.

## DECREE ACCEPTING AWARD OF COMMISSIONERS.

This cause came on to be heard on motion of the petitioners for the acceptance of the award of the commissioners at this sitting, and was argued by counsel; and, it appearing that notice of the motion of the petitioners for the acceptance of the award of the commissioners had been published and served in accordance with the order of the court, thereupon, upon consideration thereof, it is ordered, adjudged and decreed that the report of the commissioners, Arthur P. Rugg, James F. Jackson and John J. Flaherty, be and the same hereby is accepted.

By the court,

JOHN NOBLE,

*Clerk.*

Nov. 10, 1905.



# DIAGRAM OF THE PUBLIC OPEN SPACES OF THE BOSTON METROPOLITAN DISTRICT IN 1906.

MILES 0 1/2 1 2 3 4 5

0 1 2 3 4 5 6 7 KILOMETRES



OPEN SPACES HELD BY LOCAL AUTHORITIES

OPEN SPACES HELD BY THE METROPOLITAN COMMISSION



# DIAGRAM OF THE PUBLIC











